

2812-25

April, 1957



# SOAP

and

# CHEMICAL SPECIALTIES

**In this issue...**

**Detergents in sewage study  
shows ABS of villain role**

\* \* \* \*

**Excessive moisture reduces  
lake fluid's boiling point**

\* \* \* \*

**Alt-in detergent metering  
vice can strengthen carton**

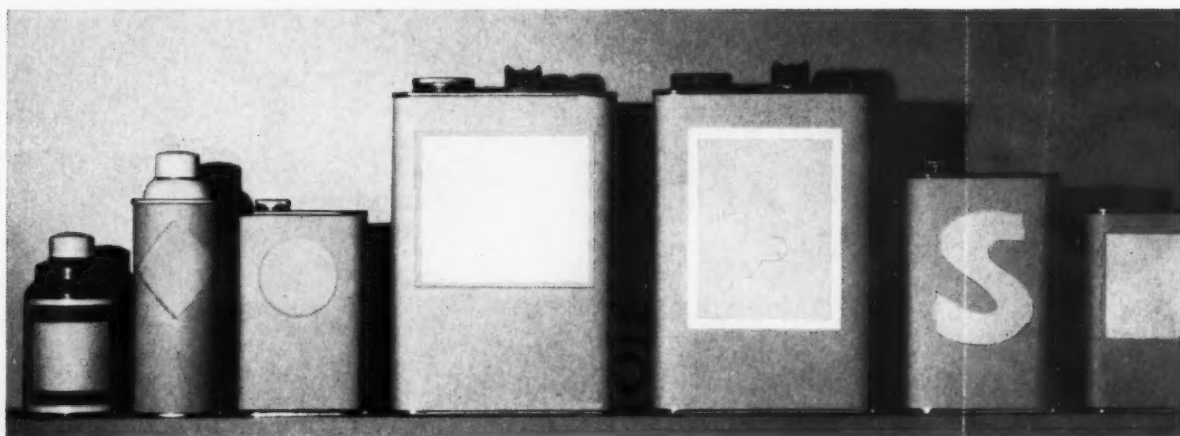
\* \* \* \*

**Volume ahead as fabric  
finers hit retail market**

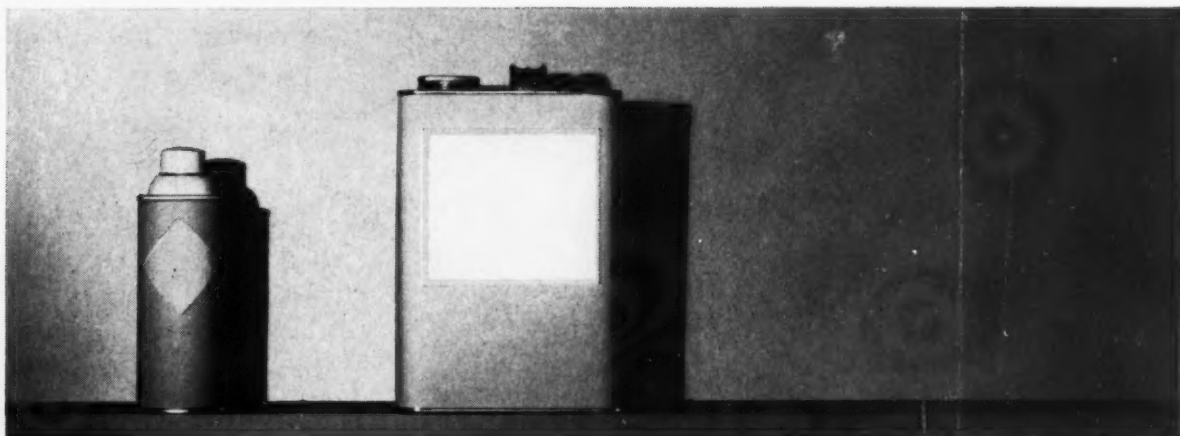
Carton for "White Magic Soap" of Newport Products Co. (Safeway Stores) San Francisco, won first award in soap class during 1957 Folding Carton competition of Folding Paper Box Assn. of America. Paperbox Corp., Oakland, Calif., carton.



# Paint Removers...



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## **SOLVAY METHYLENE CHLORIDE IS NONFLAMMABLE! LOW IN TOXICITY! SURE!**

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Methylene Chloride • Carbon Tetrachloride



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*Norda makes good scents*

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APRIL, 1957

3



*Are you searching for  
an honest appraisal  
to guide you as a  
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distributor*

#### SELF-POLISHING WAXES

Each of Candy's floor waxes are all-around, top quality for certain traffic conditions. They impart the finest protection and beauty to floors for which best suited.

**CANDY'S SUPREME (standard)**

**BRIGHT BEAUTY® (standard)**

**CANDY'S SUPREME Special WR**

**SUPER CAND-DOX®**

**CAND-DOX® #CS**

**CANDI-WAX #6000**

All Candy's products are available for private brand resale and are sold only through distributors except for experimental accounts in Chicago essential to research.

Beauty and  
Durability

Anti-Slip

Water  
Resistance

Solid  
Content

Carnauba  
Wax

Initial appearance is important, but for a waxed surface to remain beautiful, it must be durable. Durability depends not only on resistance to abrasion of traffic, but even more so on resistance to discoloring marks. Durability should be measured by how long the waxed surface maintains a nice appearance before complete removal and re-waxing is required.

Anti-slip, or reasonable safety underfoot, does not mean that the qualities of beauty and protection need be sacrificed. The proper balance—a wax film which is not excessively slippery, yet which is not tacky and does not collect dirt readily—gives the performance that answers the foremost original reason for use of a floor wax... beauty and protection.

Frequent damp mopping or wet traffic can make water resistance very important. Overdoing this quality when no problem exists out of the ordinary, simply increases the difficulty of complete removal or applying multiple coats. Removability must be considered as important as water-resistance under most normal conditions.

The percentage of solid content is not nearly as important as the quality of the solids. Good quality indicates 12% of solids as the answer for most well planned maintenance programs. Two applications of 12% gives better results than one of 18%. "Washed out" floors and other special problems maintain better when more concentrated waxes are used. Over-waxing and resultant greater difficulty in removal for periodic maintenance may do more harm than good.

The most important features of a good wax... all-around quality of performance... are built around Carnauba Wax. When refined and compounded with other additives and scientifically controlled in manufacture, Carnauba alone imparts the beauty and protection that makes the use of floor waxes both profitable and possible. Make-shift manufacture or over-emphasis on any one given wax feature should be avoided and proper care taken to provide for most satisfactory performance.

#### Other HIGHEST QUALITY wax products by CANDY & COMPANY

##### Bright Beauty WAX REMOVER & all-purpose SURFACE CLEANER

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##### Bright Beauty LIQUID (spirit) PREPARED WAXES

A complete line of spirit dissolved waxes that meet a wide variety of demands for durability, color and types of usage. Each acts as a "dry cleaner" to keep surfaces waxed protected with a superb coating necessary for many applications such as wood and certain other types of floors; for bars, wallpaper, etc.

##### Bright Beauty GLASS POLISH & CLEANER and SILVER POLISH

As a Glass Cleaner (pink color) it applies evenly with little effort, wipes off easily with negligible "powdering" and produces an undeniable "feel" of cleanness to glass. Different in color only as a Silver Polish, it polishes

to a high lustre without abrasion and can even correct the abuses of scratchy "quick-polish" inferior products.

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Does not "ball-up" and gather dirt that impregnates floors with hard spots difficult to remove...free from dusty effects. Its protective quality adds more "floor-years" to expensive ballroom floors.

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*Wax Specialists for over 65 years*

**Candy & Company, Inc.**

2515 W. 35<sup>th</sup> ST., CHICAGO

# SOAP and CHEMICAL SPECIALTIES

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FRANK J. REILLY  
Editor

Associate Editor  
CHARLOTTE HAAS

Advertising Manager  
THOMAS MORGAN

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IRA P. MAC NAIR  
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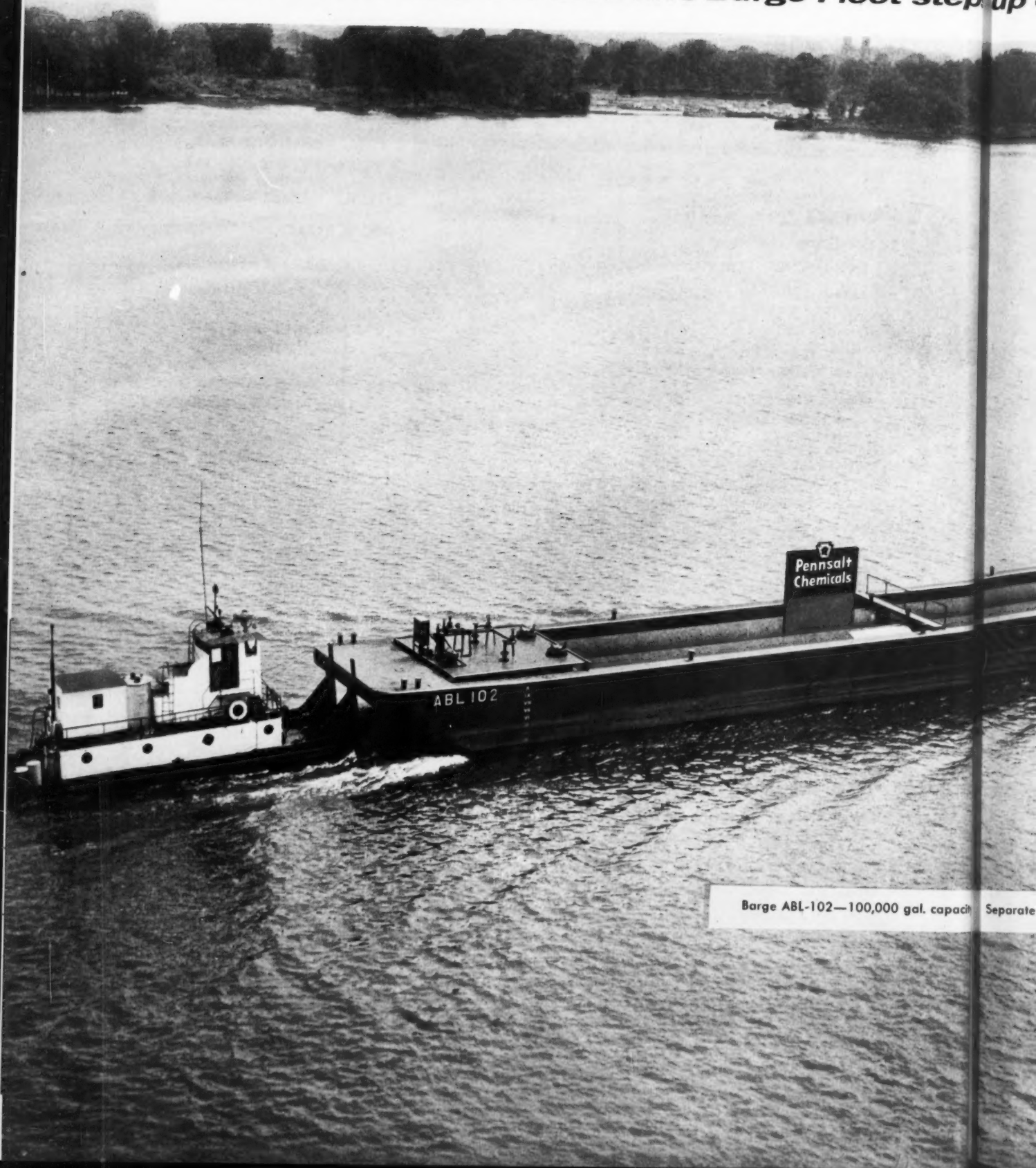


since 1934

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***Newest member of Pennsalt's Barge Fleet step up***



Barge ABL-102—100,000 gal. capacity Separate



...up deliveries of...

## CAUSTIC SODA

Meet the new ABL-102!—latest addition to Pennsalt's fleet of caustic barges. Designed with two 10,000-gallon and two 40,000-gallon compartments, the new barge makes it possible for customers to receive 250-325 dry tons of material in one shipment—or mixed bulk liquid shipments of caustic soda and caustic potash.

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DETERGENT

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### In commerce...



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### ..... In the history of fats and waxes

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Titre .....	53.8° — 54.4°C.
Titre .....	128.8° — 129.7°F.
Color 5¼" Lovibond Red .....	0.7 max.
Color 5¼" Lovibond Yellow .....	2.5 max.
Unsaponifiable .....	0.05% max.
Saponification Value .....	208 — 212
Acid Value .....	207 — 211
Iodine Value (WIJS) .....	5.0 — 6.5

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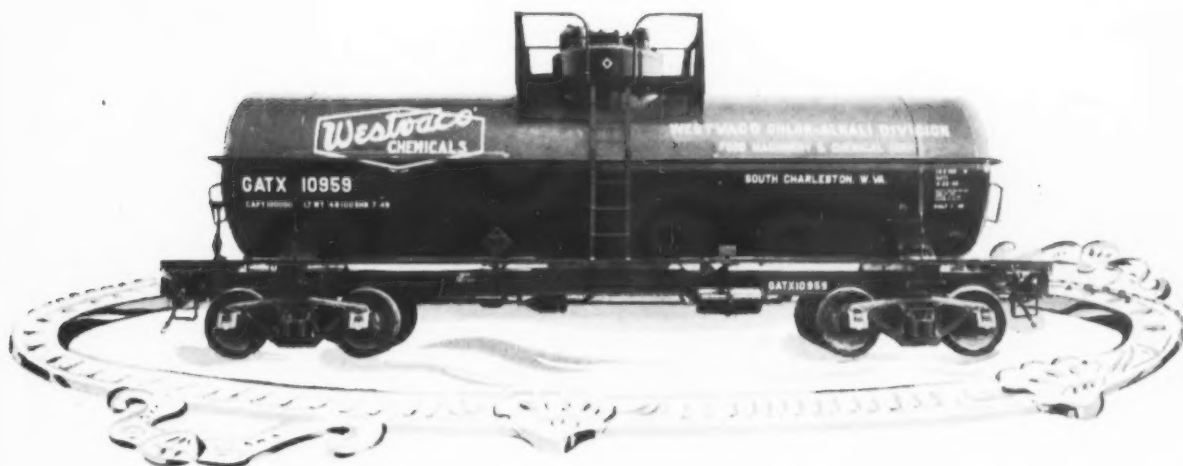
Factory: Newark, N. J.

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# "the customer is always right"



## to specify **WESTVACO® ALKALIS**

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Liquid 73%  
Liquid 50%, Regular  
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Flake, Solid and Ground, 76% Na<sub>2</sub>O

### **CAUSTIC POTASH**

45 and 50% Liquid; Flake and Solid

### **SODA ASH**

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Westvaco customers have learned to expect "de luxe" service based on

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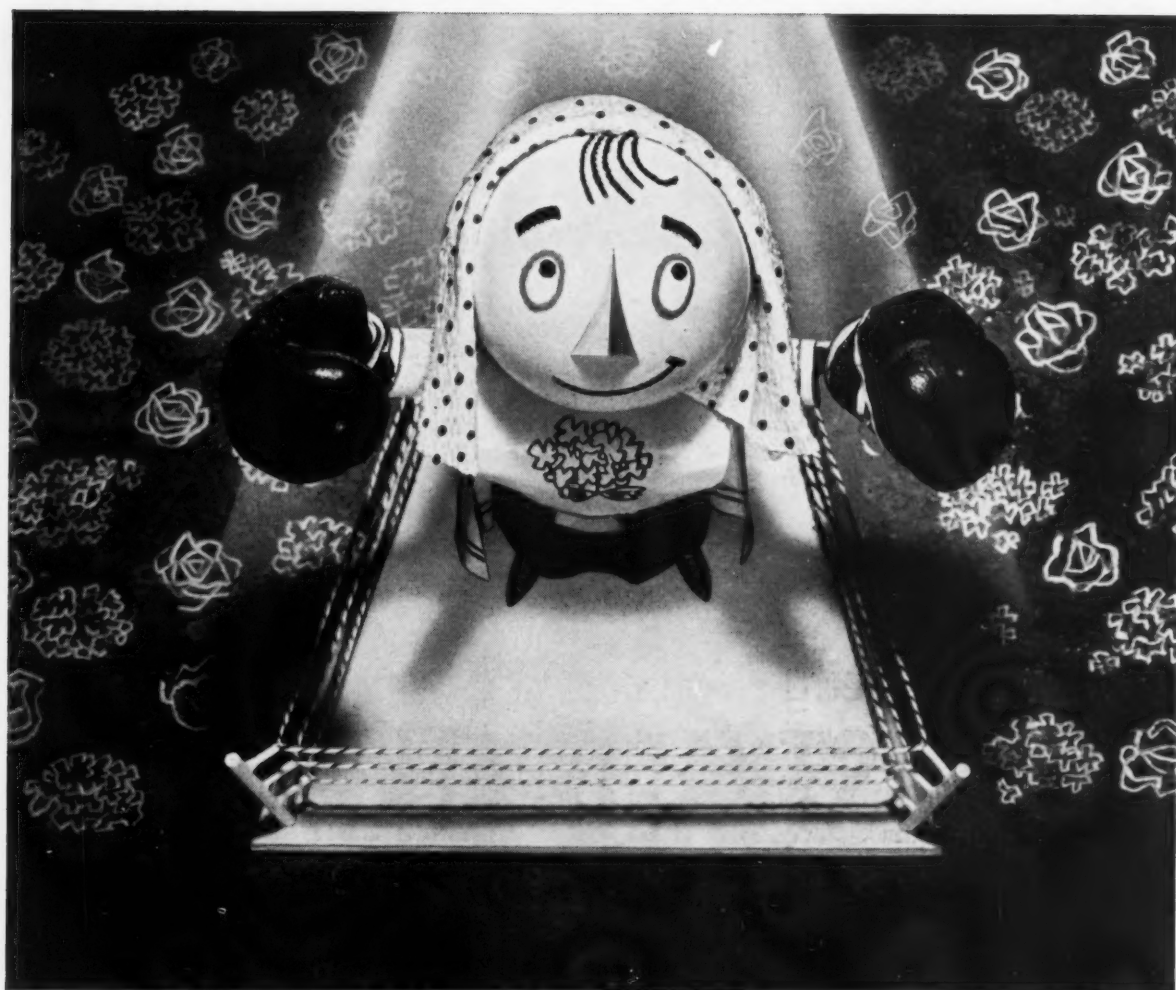
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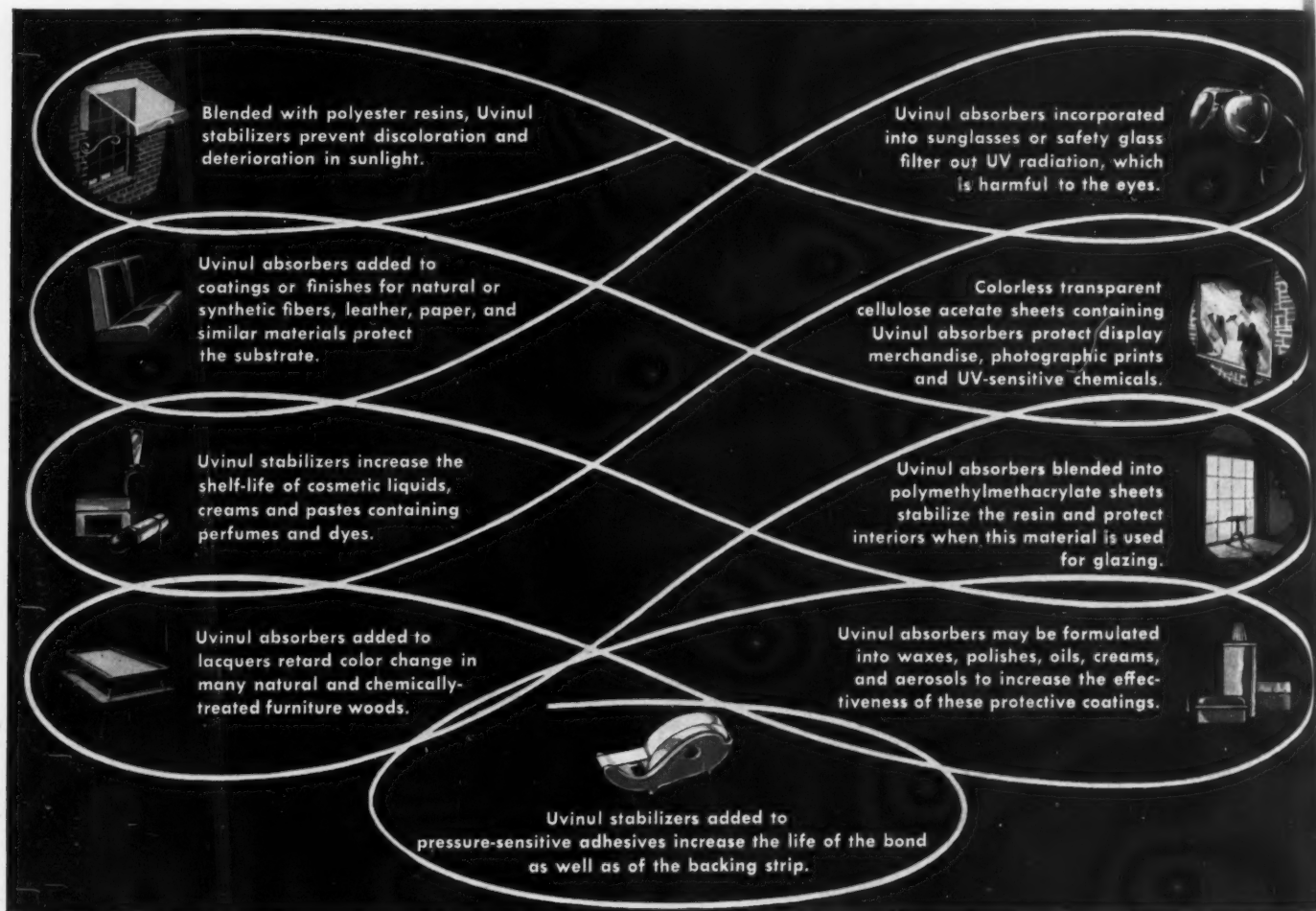
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UVINUL ultraviolet absorbers and stabilizers can be incorporated into solid plastics and protective coatings to permanently prevent deterioration or discoloration caused by ultraviolet radiation. They are also effective as stabi-

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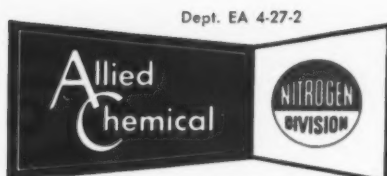




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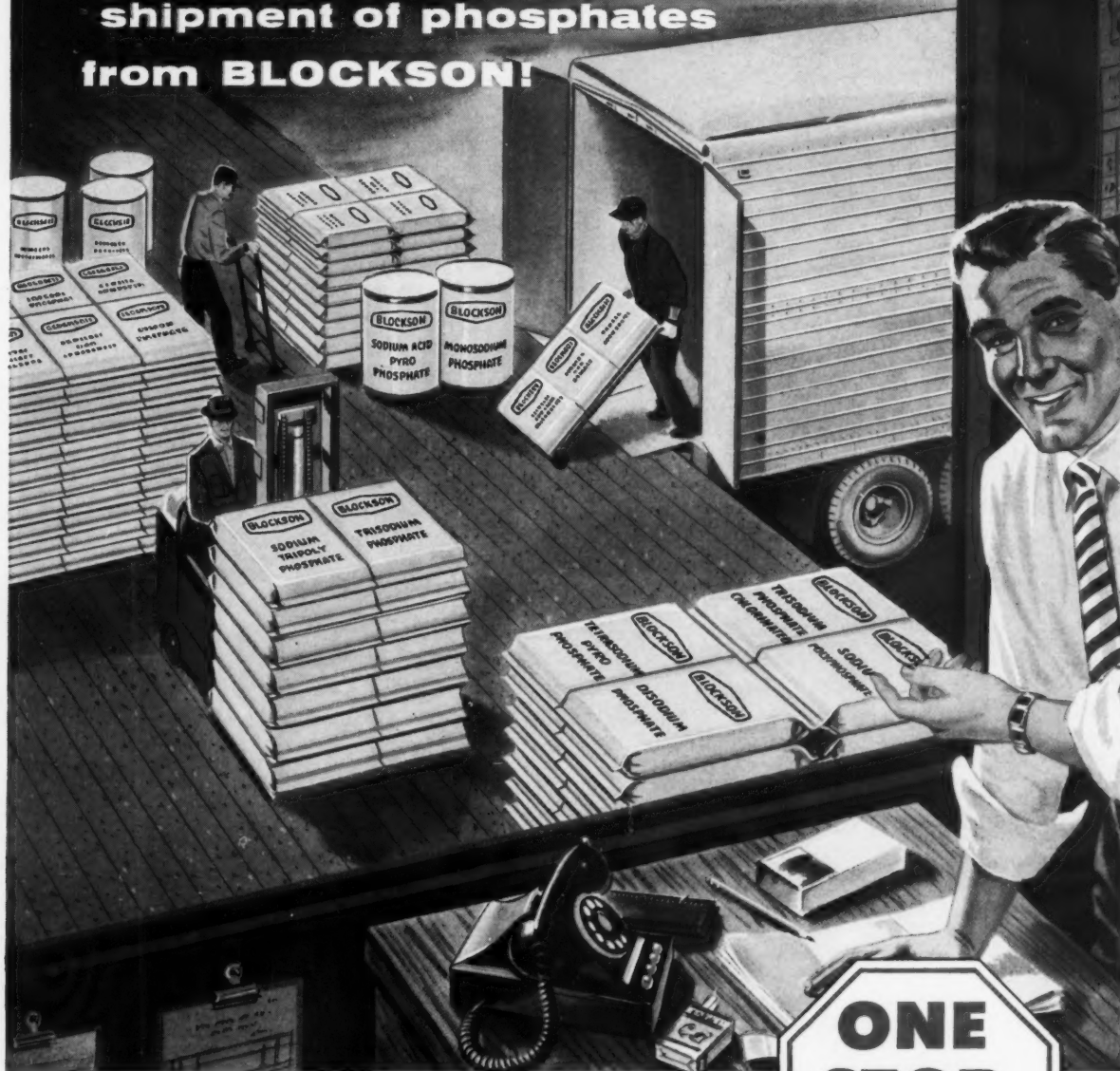
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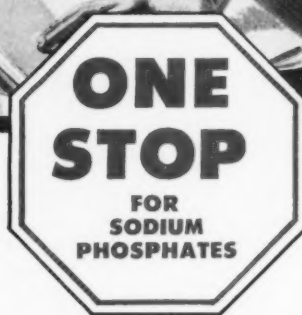
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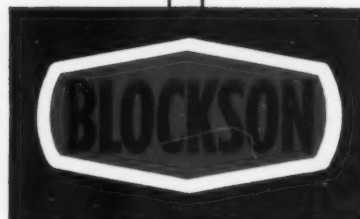
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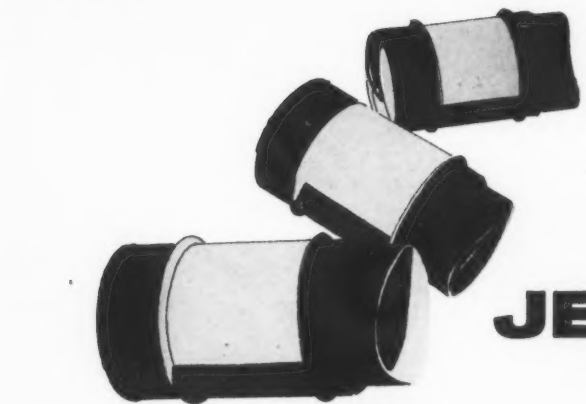
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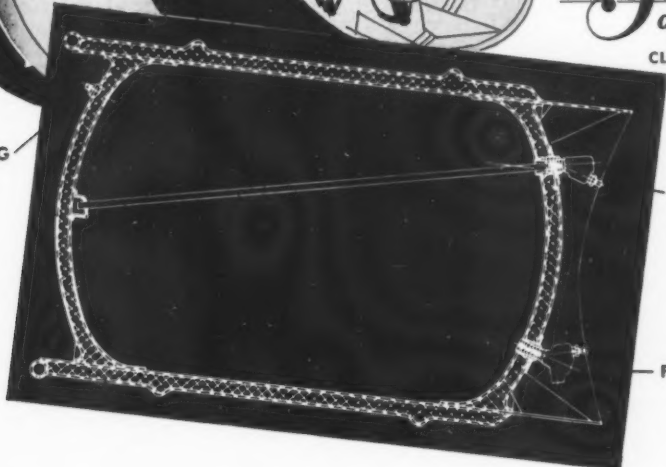


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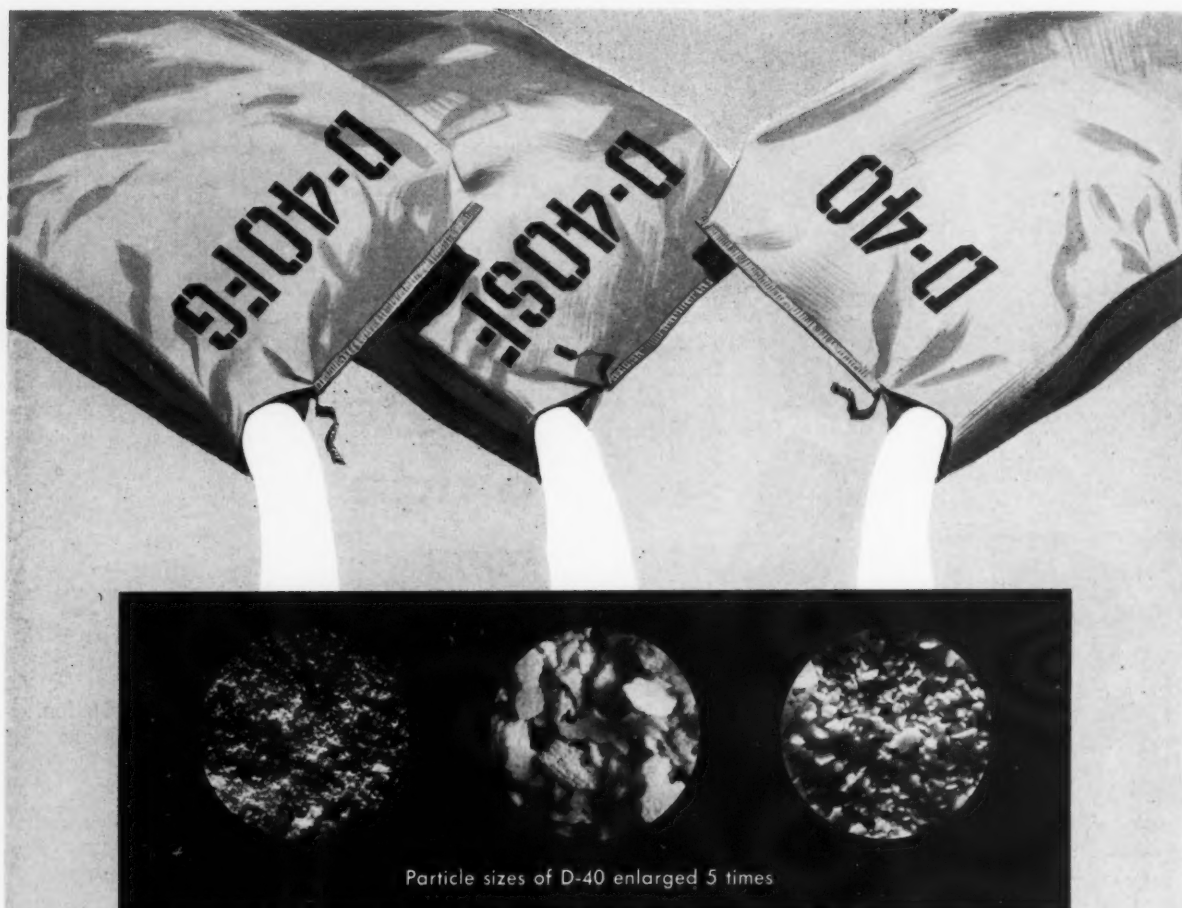


TEST PLUG



EDUCATION VALVE

PRESSURIZING VALVE



## **D-40\*** the dependable, versatile dry detergent

Whether you repackage dry detergents "as is" or incorporate them in a specific product—you'll find it to your benefit to investigate superior D-40, produced by the world's largest supplier of detergent raw materials.

Oronite is your only dry detergent source producing three different particle sizes. Choose the one that best fits your own needs—all are competitively priced and available from warehouses throughout the United States.

\*T. M.

Fill out coupon below for helpful detergent "use" bulletin showing a variety of fields where D-40 is successfully used. Or, request an Oronite representative to contact you regarding your requirements.

**D-40** (granules) Ideal for general compounding use

**D-40 SF** (flakes) Used widely as car-wash product

**D-40 FG** (powder) Suited for scouring powders and wettable agricultural dusts and insecticides

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#### **Sales Offices**

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4184

#### **Detergents**

Oronite Chemical Company  
200 Bush St., San Francisco 20, Calif.

- ☐ Please have detergent specialist contact me regarding our dry detergent requirements.
- ☐ Please send your D-40 detergent "use" bulletin.

Name \_\_\_\_\_

Address \_\_\_\_\_

Company \_\_\_\_\_

Type of business \_\_\_\_\_







# After Closing

## NSSA Meets, Elects Reider President

**W.** JAMES REIDER, head of Geo. T. Johnson Co., Medford, Mass., was elected president



W. James Reider

of the National Sanitary Supply Association at the organization's 34th annual meeting and trade show held at the Conrad Hilton Hotel, Chicago, Mar. 31 to Apr. 3. He succeeds Jacob Kahn, Windsor Wax Co., Hoboken, N. J. who had held the post for the past year. Mr. Kahn becomes a member of the board of directors.

Other officers elected include Harold J. Pond, Advance Floor Machine Co., Minneapolis, national vice-president; Samuel Brody, reelected, Atlas Products Co., Chicago, treasurer; and Albert I. Mack, Easterday Supply Co., Los Angeles, secretary of the board. Named to the board of directors as district representatives were Philip Janvey, I. Janvey & Sons, Hempstead, N. Y., district one; Milton W. Greenberg, (reelected) United Metal Cabinet Corp., Pottsville, Pa., district two; Ted V. Fisher, reelected, Puritan Chemical Co., Atlanta, Ga., district three; Henry J. Brownstein, reelected, Hysan Products Co., Chicago, district four; Henry Stern, Superior Chemical Co., Houston, Tex., district five; Carl Stanford,

City Janitor Supply & Brush Co., St. Louis, district six; Arthur Wise, Jr., Nu-Tone Products Co., Denver, district seven; and Louis Clark, reelected, Clark Paper Converting Corp., Los Angeles, district eight. In addition to Mr. Kahn, Dewey I. Doyle of Doyle Vacuum Cleaner Co., Grand Rapids, Mich., was elected a director at large.

Although final attendance figures have not as yet been compiled, it is estimated that 1957 totals will substantially exceed last year's record breaking attendance of 2,100. About 171 manufacturers and distributors of sanitary chemicals, and application and dispensing equipment exhibited at the trade show.

## Doak Joins Lever

Thomas A. Doak has joined Lever Brothers Co., New York, as an oil buyer in the purchasing division, it was announced late last month by David J. Bunnell, division vice-president. Mr. Doak formerly was general business economist for Longstreet-Abbott, St. Louis commodity consultants. His principal responsibilities with Longstreet included the establishment of a research program and

Thomas A. Doak



industry advisory program for industrial fats.

—★—

## Finnerty Joins Federal

Federal Varnish Division, Chicago, recently announced the appointment of Logan Finnerty as western sales manager. In his new post, Mr. Finnerty will be responsible for the development and sales



Logan Finnerty

of Federal products in the western states. Mr. Finnerty formerly was associated with Fuld Brothers, Inc., Baltimore, in a sales capacity. Prior to that he had been a manufacturer's representative. In addition to his sales experience, Mr. Finnerty has conducted his own sales consultation service, assisting jobbers in merchandising and marketing techniques and training jobbers' salesmen.

—★—

## Borden Appoints Sanders

Appointment of Richard G. Sanders as director of marketing and planning for the special products division of Borden Co., New York, was announced recently by Dr. Raymond J. Kunz, division president. In his new post, Mr. Sanders' major responsibilities will be the formulation of long-term marketing plans for the division, counseling and assisting product departments on marketing and sales programs and coordination of acquisition and expansion projects. The division produces sanitation agents. Mr. Sanders previously was with Stewart, Dougall & Associates.

### Wyandotte Price Cut

Michigan Alkali Division of Wyandotte Chemicals Corp., Wyandotte, Mich., recently announced price reductions of from 1½ to two cents per pound on drum quantities of its "Pluronic" and "Tetronic" polymers. According to S. B. Scott, division sales director, specialty grades of the polymers, which are utilized in detergent and surfactant applications, will be reduced in price up to seven cents per pound.

—★—

### SAACI Golf Outings

Five golf outings have been scheduled for 1957 by the Salesmen's Association of the American Chemical Industry (SAACI), it has just been announced by Vincent L. Rebak, New York district sales manager of Grace Chemical Co., New York, SAACI president.

The first outing will be held Tuesday, May 14th, at North Jersey Country Club, Paterson, N. J. Other outings will be held Thursday, June 6th at Huntington Crescent Club, Huntington, L. I., N. Y.; Tuesday, July 9th, at Bonnie Briar Country Club, Larchmont, N. Y.; Monday, August 5th, Tamarack Country Club, Greenwich, Conn., which will feature golf and a clam-bake, and Tuesday, September 10th at Hackensack Country Club, Oradell, N. J.

Arthur C. Curran of Meer Corp., New York, is chairman of SAACI's Golfing Committee.

—★—

### New West Floor Wax

A new water emulsion floor wax for industrial and institutional use, was introduced recently by West Disinfecting Co., Long Island City, N.Y. Tradenamed "Westwax," the new product is claimed to be suitable for use on all light colored resilient floors.

Said to be water resistant, "Westwax" contains "Ludox," colloidal silica anti-slip agent of E. I. du Pont de Nemours & Co., Wilmington, Del., and "Mirite," an emulsion, formulated by West from a hard, clear, glossy plastic. Further information may be obtained from

the company, 42-16 West St., Long Island City 1, N. Y.

—★—

### Joins Cholesterol Firm

Henry F. Maso has joined American Cholesterol Products, Inc., Milltown, N. J., as director



Henry F. Maso

of technical services, it was announced recently by Lester I. Conrad, vice-president and technical director. In his new post, Mr. Maso will supervise the firm's consumer service and product formulation programs for cosmetics and pharmaceuticals. He formerly was senior research chemist at Johnson and Johnson, New Brunswick, N. J., with whom he was associated for 13 years.

—★—

### Mathieson Sales Record

Sales and earnings of Olin Mathieson Chemical Corp., Baltimore, reached an all time high last year, according to a report issued recently by John M. Olin, chairman, and Thomas S. Nichols, president.

Net sales during 1956 totaled \$596,673,005, an increase of 6.5 per cent from the previous year's volume of \$560,480,335. Net income in 1956 amounted to \$44,791,071, equal to share earnings of \$3.38, as compared with \$44,558,102 or \$3.51 per share in 1955. The 1956 total sales did not include \$48,519,075 from operations in foreign countries other than Canada. Earnings of \$1,484,868 were retained abroad and not included in 1956 results.

### AOCS Meet Apr. 29-May 1

More than 60 technical papers will be presented in concurrent sessions at the 48th annual spring meeting of the American Oil Chemists' Society, it was announced recently. The meeting will be held at the Roosevelt Hotel, New Orleans, Apr. 29 to May 1.

Three symposia will highlight the technical program. A symposium on "Unit Process and Operations," will feature papers on distillation of tall oil and on processing of oilseed. A. E. MacGee of Skelly Oil Co., Kansas City, Mo., has arranged a symposium which will cover safety problems in the laboratory, pilot plant and production plant, and a symposium on "Fats in Nutrition and Health" will be held.

Notable among the papers to be presented at the general sessions are those by M. M. Renfrew of Spencer Kellogg and Sons, Inc., Buffalo, N. Y., on "Drying Oils," and Leonard Smith of the National Cotton Council on "Cottonseed Oil and Competing Vegetable Oils." Other papers will cover processes for washing, bleaching and related matters of interest to manufacturers of soap, detergents and allied specialties.

Additional events scheduled at the meeting include the annual business meeting, the election of AOCS officers for 1957 and the traditional banquet and dance.

—★—

### Brink Wins du Bois Award

Dr. Joseph A. Brink, Jr., of the organic chemicals division of Monsanto Chemical Co., St. Louis, recently received one of the division's Gaston du Bois Awards for development of a glass fiber filtration technique for aerosols. The citation, named in honor of Mr. du Bois, former president of Monsanto, is presented annually by the division in recognition of outstanding research accomplishments. Dr. Brink joined Monsanto in 1954 and is presently a member of the unit operations group at the firm's Everett, Mass., research laboratory.

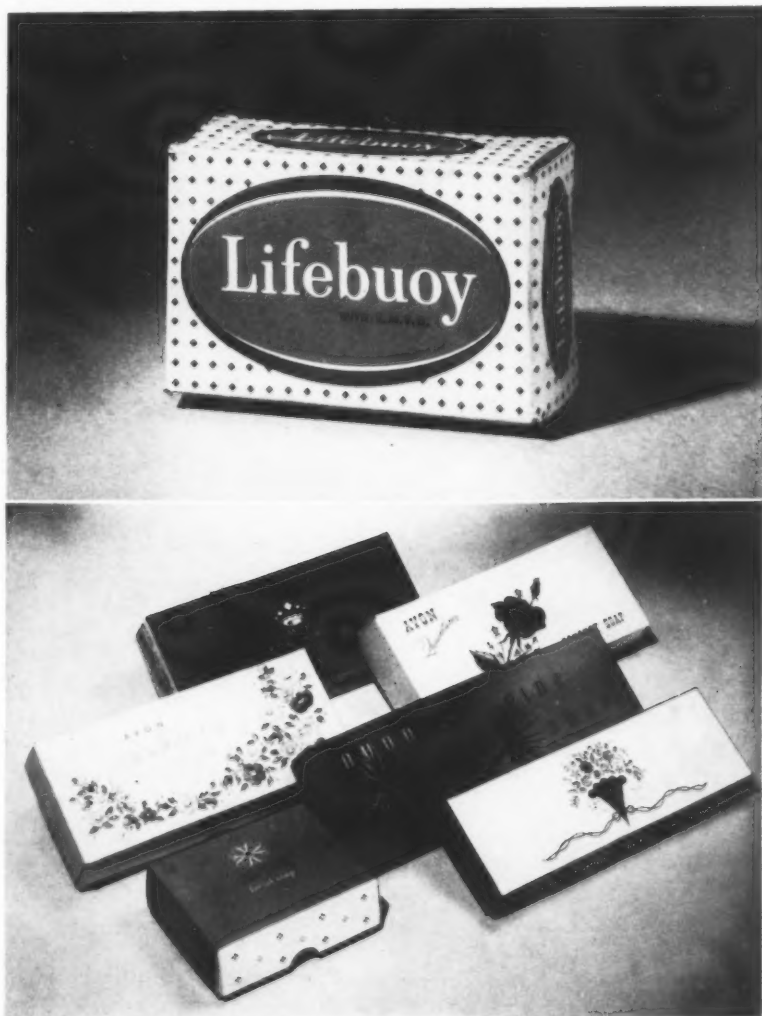


## Soap Packages Win Folding Box Awards

**P**ACKAGES for three soap products received awards in the annual carton contest sponsored by the Folding Paper Box Association. The awards were presented and the winning packages exhibited at the association's 31st annual meeting held at the Drake Hotel, Chicago, March 31-April 3. First prize in the soap category went to "White Magic Soap" by Newport Products Co., (Safeway Stores) San Francisco, in a box by Paperbox Corp., Oakland, Calif., (see cut on front cover). A merit award in the same category was won by "Lifebuoy"

Soap, Lever Brothers Co., New York, in a box by Fort Orange Paper Co., Castleton-on-Hudson, N. Y. "Avon Soap Family," Avon Products, Inc., New York, in a box by Lord Baltimore Press, Inc., Baltimore, Md., won merit awards in the cosmetics category and for offset lithography. A merit award for gravure went to "Economy King All," Monsanto Chemical Co., St. Louis, Mo., Ohio Boxboard Co., Rittman, O., box-maker, and liquid "Trend" of Purex Corp., South Gate, Calif., won a merit award for a carrier

Merit award winners in the annual competition of the Folding Paper Box Association included the two soap products below. Lever Brothers Co., New York, received a merit award in the soap category for its "Lifebuoy" package, which was produced by Fort Orange Paper Co., Castleton-on-Hudson, N. Y. A soap winner in the cosmetics category was the "Avon Soap Family" of Avon Products, Inc., New York, which received a merit award. Lord Baltimore Press, Inc., Baltimore, supplied Avon's prize winning soap cartons which were printed by offset lithography.



by Container Corp. of America, Chicago.

When presenting the awards, Gustav L. Nordstrom, executive director of the association predicted that by 1965 one store out of three will have some form of self selection. He reported a marked increase in the number of non-food products packaged in folding cartons, among the 9,123 entries in this year's contest.

Self-selection based on packaging will increasingly dominate most types of retailing and help to rebuild profit margins, John M. Wilson, of National Cash Register Co., told the meeting in a talk entitled "Consumers Forcing Retailing Switch to Self-Selection." Since the end of World War II net profit figures in many lines of retail business have been slowing, Mr. Wilson said. Between 1946 and 1954 average net profits for department stores dropped from 7.8 per cent to 2.6 per cent; for drug stores from 8.6 per cent to 5.1 per cent; for chain variety stores from 9.9 per cent to 4.6 per cent; and for hardware stores from 9.9 per cent to 1.9 per cent. Costs have continued to rise faster than volume, Mr. Wilson pointed out. Mass retailing by open display of packaged goods for customer self selection may provide the answer. In hardware stores this type of merchandising raised per employee sales to \$30,000 in contrast to the national average of \$20,000; in drug stores to \$43,000 per full-time employee compared with the average of \$17,000 in drug stores of the same size.

A prediction that sales of folding paper boxes will climb to \$1.5 billion in sales volume by 1967 from the 1956 level of \$936 million was made by association president Norman F. Greenway, in his annual report.

Economist Arno Johnson termed advertising and packaging the keys to boost production to a predicted \$600 billion level by 1967. Mr. Johnson is a vice-president of J. Walter Thompson Co., New York public relations firm.

### **Record Shulton Sales**

Shulton, Inc., Clifton, N. J., achieved in 1956 the highest sales and earnings in its 23 year history, it was announced recently. The company reported that sales increased 17 per cent to \$29,257,961 from \$24,936,456 in 1955. Net income in the 12-month period ended with December amounted to \$2,787,100, equal to \$2.27 per common share. This was 22 per cent above the \$2,283,127 and \$1.86 earned in 1955.

According to George L. Schultz, president, the most significant factor in the sales rise was the introduction of nine new products. The international division also showed substantial growth, Mr. Schultz said. Its activities now include supervision of subsidiaries in Mexico, Canada, Cuba, Venezuela, the Netherlands and Britain and sales operations in ten other countries.

—★—

### **Johnson in Venezuela**

S. C. Johnson & Son, Inc., Racine, Wis., recently announced the incorporation of a new foreign subsidiary, S. C. Johnson & Son, Venezuela, C. A. Acquisition of land for a plant in Venezuela is being planned by Johnson, that country being one of its largest overseas markets for household, automotive and maintenance products. Johnson's also has subsidiaries in Canada, Great Britain, Australia, France, Brazil, Mexico and West Germany.

—★—

### **Win Cowles Trips**

W. M. Arnold of Providence, R. I., and W. G. Brawner of Milwaukee, Wis., recently were named winners of the "Luxury Trips" sales contest of Cowles Chemical Co., Cleveland. Both men are members of the firm's laundry chemicals sales department. The one-week, all expenses paid trips, were awarded by Cowles to the two salesmen who exceed their 1956 sales quotas by the greatest amount. Mr. Arnold, who finished first out of 65 Cowles salesmen, accom-

panied by his wife will spend a week in Bermuda, while Mr. and Mrs. Brawner will spend a week at the Greenbrier Hotel, White Sulphur Springs, W. Va.

—★—

### **New Detergent Dispenser**

A new dispenser designed to meter a combination of one part liquid detergent to 500 parts water, was introduced recently by East Coast Soap Corp., Brooklyn, N. Y. Called the "Proportional Faucet Dispenser," it consists of a plastic tube that connects a stainless steel faucet attachment with a five gallon detergent container. The dispenser is also equipped with a push-button device which permits delivery of clear water in place of the mixture. At present the dispenser is being offered free to all users of East Coast's "E-Z Suds" liquid detergent. Further information may be obtained from the company, 89 Coffey St., Brooklyn, N. Y.

—★—

### **New Olin Anti-Freeze Plant**

Construction of a \$1,500,000 anti-freeze formulating and packaging plant was begun recently by Olin Mathieson Chemical Co., Baltimore, at Mapleton, Ill. The new unit is being built on a 250-acre site on the Illinois River ten miles south of Peoria.

The plant will be owned by Mapleton Industries, Inc., which will operate it for Olin Mathieson on a leaseback arrangement. Scheduled for completion by the Spring of 1958, the new structure will consist of a steel and concrete brick building of 90,000 square feet floor space, and an outdoor tank farm for bulk storage of raw materials and terminal facilities for rail, truck and water transportation. Anti-freeze produced at the Mapleton plant will be sold under a number of customers' private brand names as well as under the company's own labels. Raw materials will be brought in by river barge from Olin Mathieson's chemical plants at Morgantown, W. Va., and Brandenburg, Ky.

### **New Mona Water Softeners**

Mona Industries, Inc., Paterson, N. J., recently announced commercial production of its complete line of "Monaquests" sequestering, chelating and complexing agents. The new products are primarily designed for use in the manufacture of soaps and detergents, but can also be utilized in many related industries. Specifications, samples and literature may be obtained from the company, P.O. Box 1786, Paterson 17, N. J.

—★—

### **SAACI Sales Clinic Set**

The sixth annual Sales Clinic of the Salesmen's Association of the American Chemical Industry (SAACI) will be held Monday, October 14, at the Hotel Roosevelt, New York, it has just been announced by Vincent L. Rebak, SAACI President. Mr. Rebak is New York District Sales Manager of Grace Chemical Co., New York.

Chairman of the SAACI Sales Clinic for 1957 is Sam F. Teague, Jr., New York District Sales Manager, Inorganic Chemicals Division of Monsanto Chemical Co., St. Louis.

Other members of the committee include W. B. Beeson, Jr., New York District Manager, Diamond Alkali Co., Cleveland; James E. Shand, Assistant Manager, Chemical Sales Department, Barrett Division, Allied Chemical & Dye Corp., New York; Harris C. Miller, New York District Sales Manager, Hooker Electrochemical Co., Niagara Falls, N. Y. and Raymond C. Tower, Phosphate Sales Manager, Westvaco Mineral Products Division, Food Machinery & Chemical Corp., New York.

The all-day sales clinic will feature individual discussions of sales problems at the morning session. A group luncheon will be addressed by a nationally known speaker. In the afternoon, a series of panel discussions will be followed by a short round-up session at which panel moderators will review the highlights.

The day's activities conclude with a social hour.







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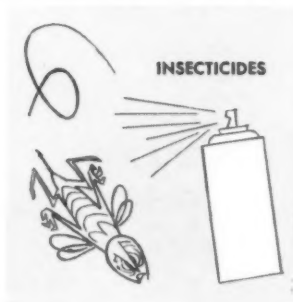
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<b>*PENDIT® WA-T</b> By Rayette (Clear Fluid Liquid)	Triethanolamine lauryl sulfate	<ul style="list-style-type: none"> <li>• Clear liquid shampoos • Foaming hand cleaners</li> <li>• Bubble baths</li> </ul>	Low cloud point; outstanding color, foaming, detergency and wetting properties; 40-42% active.
<b>*PENDIT® WA-D</b> By Rayette (Clear Water Solution)	Diethanolamine lauryl sulfate	<ul style="list-style-type: none"> <li>• Clear liquid shampoos • Bubble baths</li> <li>• Foaming hand cleaners</li> </ul>	33-36% active; anionic in character, pronounced color stability.
<b>*PENDIT® CA</b> By Rayette (White Viscous Aqueous Paste)	Quaternary Ammonium Compound	<ul style="list-style-type: none"> <li>• Creme rinse base • Emulsifier</li> <li>• Dairy sanitizer • Paper conditioner</li> <li>• Fabric softener • Textile lubricant</li> <li>• Mold inhibitor • Industrial deodorant</li> <li>• Germicide</li> </ul>	Cationic hair emollient; very light color; bodifier; powerful germicidal, deodorant and antistatic properties. Stabilized against separation.
<b>THIOGLYCOLIC ACID</b> By Rayette (Water-White Aqueous Solution)	65-75% Concentrate of Thioglycolic Acid	<ul style="list-style-type: none"> <li>• Hair waving lotions • Initiator for production of bis-phenol A</li> <li>• Organic tin esters as polyvinyl chloride stabilizers</li> <li>• Esters as chain transfer agents in emulsion polymerization</li> <li>• Stabilizer for acrylonitrile polymers</li> <li>• Intermediate for extreme high pressure lube oil additives</li> <li>• Depilatory</li> <li>• Intermediate for special textile softening and dyeing agents</li> </ul>	Completely free of the oxidation product dithiodiglycolic acid.
<b>AMMONIUM THIOGLYCOLATE</b> By Rayette (Cosmetic Grade) (Water-White Aqueous Solution)	50-60% Concentrate of Ammonium Thioglycolate	<ul style="list-style-type: none"> <li>• Hair waving lotions</li> </ul>	Same as above.

\*Pendit® is a registered trade-mark of Rayette, Inc. Chemical Division

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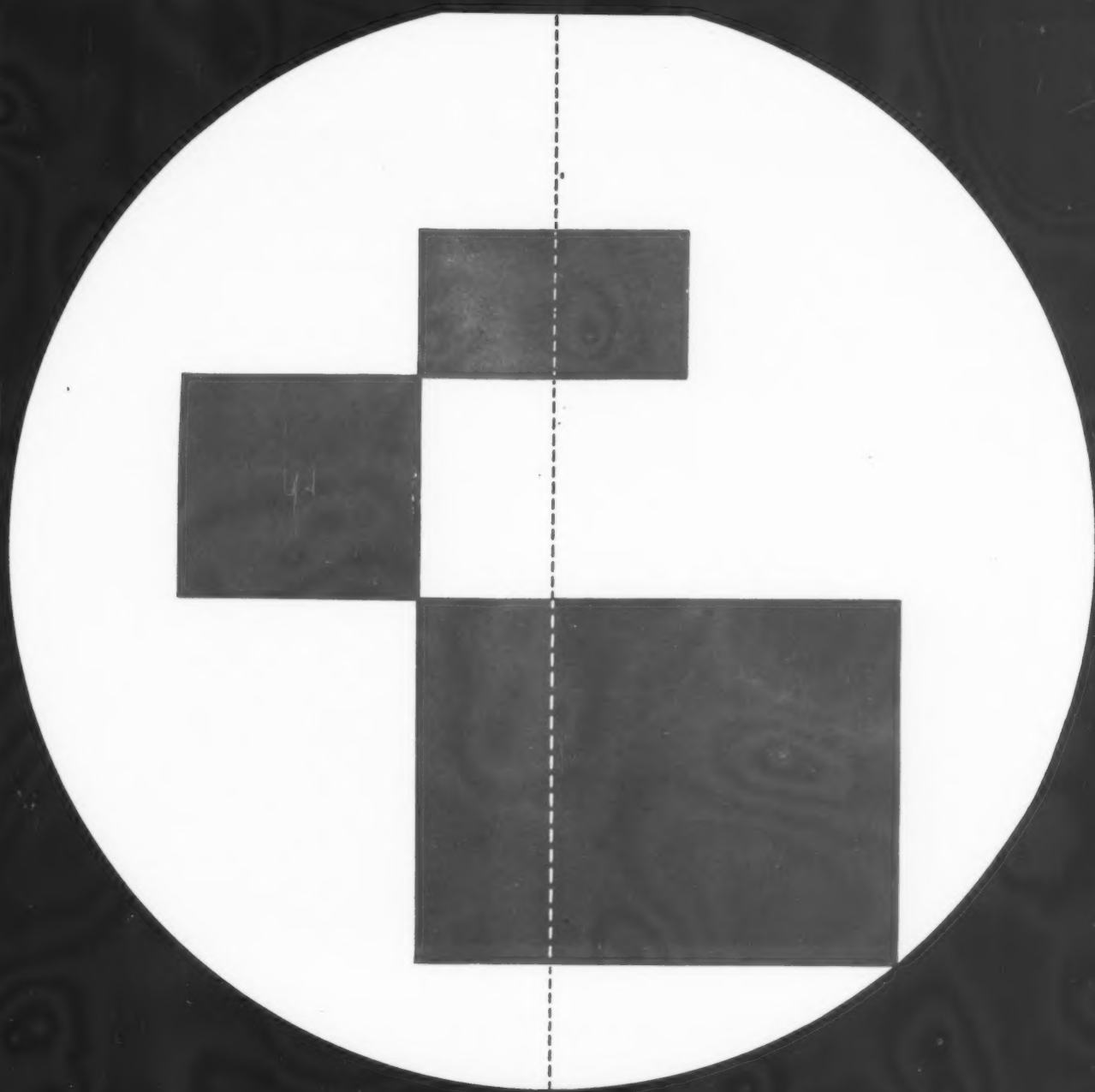


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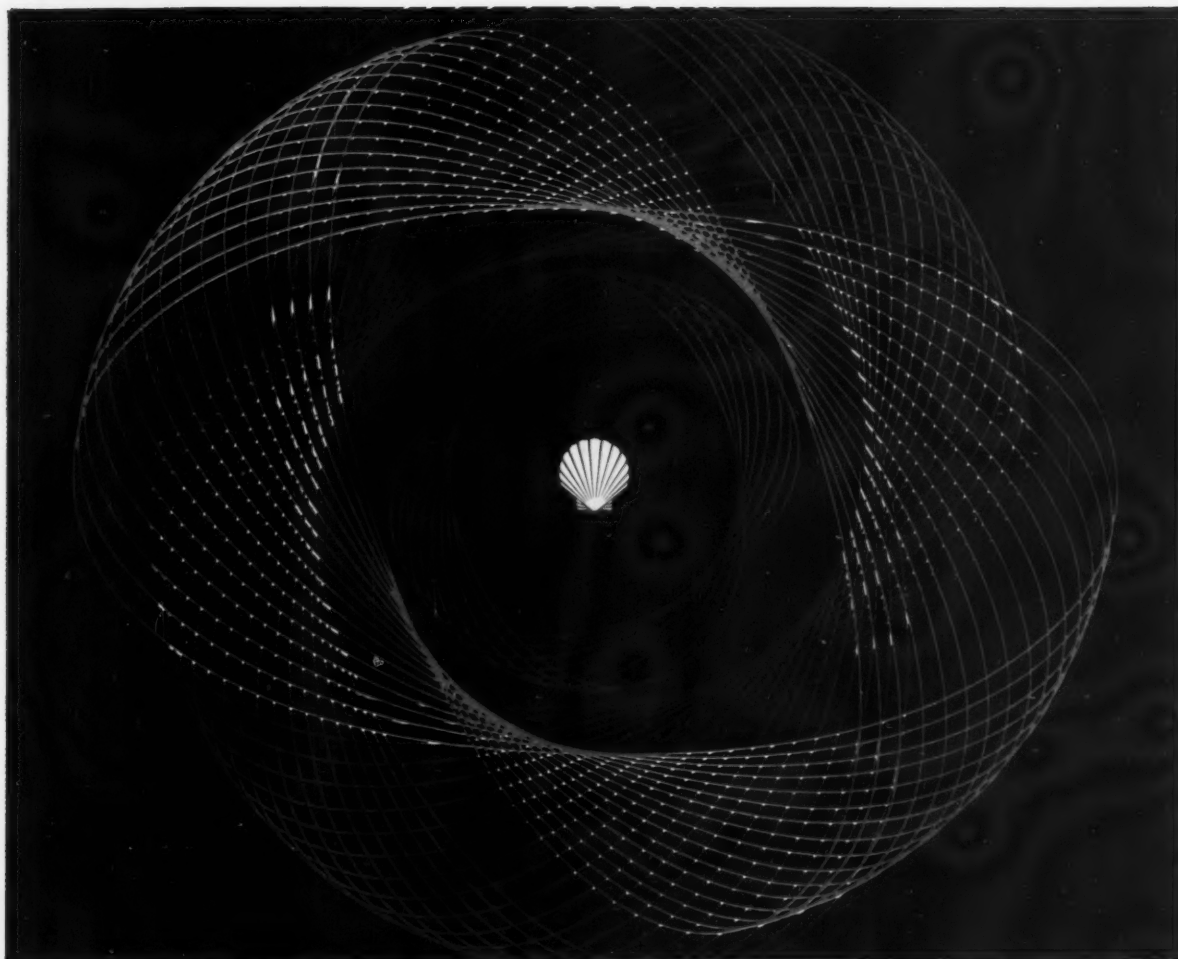
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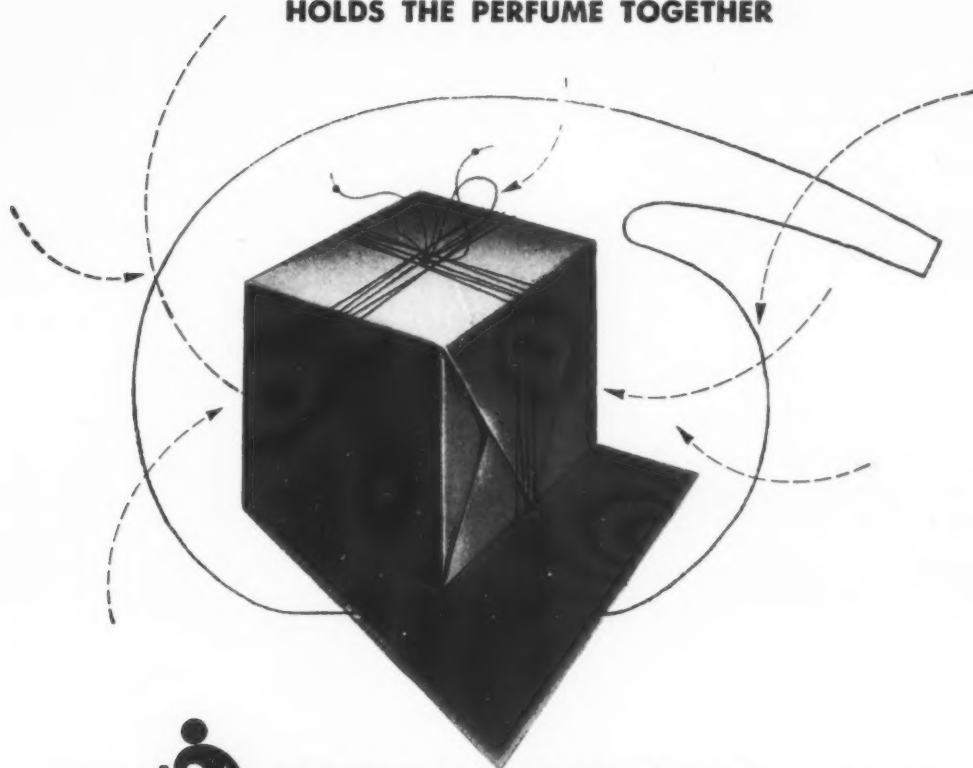
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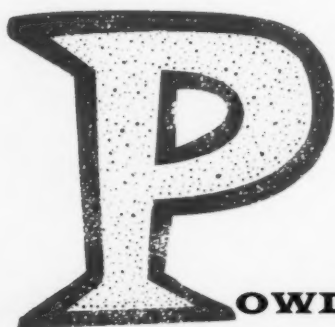
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*(He's a deck officer on the Marine Dow-Chem)*

After a few terse commands from the bridge, the 18,000-ton *Marine Dow-Chem* glides silently into the night. With her cargo of vital chemicals the *Dow-Chem* plies her way to key Dow terminals. In her storage tanks there is enough caustic soda to fill 175 tank cars.

Typical of the foresighted Dow attitude of solving a problem before it arises, the *Dow-Chem* was commis-

sioned in 1954 with an eye to the future needs of industry. Today, this specially equipped ship is an important part of our vast distribution system.

As demand increases, Dow will continue to lead the way in developing new methods to deliver caustic soda to your doorstep in any form or quantity. THE DOW CHEMICAL COMPANY, Midland, Mich., Dept. AL 600G-1.

YOU CAN DEPEND ON

**DOW**

# Bubbles with a man-sized job to do

Removing the grit and grime from a well-traveled automobile requires a cleaner with muscles. Leading synthetic detergents compounded with Atlantic Ultrawets can be made rugged enough to leave a clean, streakless shine on cars and locomotives, gentle enough for feminine hands and the finest fabrics. This is so because each of the Ultrawets has been specifically designed to do its cleaning job better.

The Ultrawets are only one member of the Atlantic family of petrochemicals (so you see a miniature oil refinery in the picture). Many new and profitable uses for these versatile Atlantic petrochemicals are constantly being applied in cost-cutting processes, in the development of new products and the improvement of well-established brands. For further information on Atlantic petrochemicals and service, write or wire The Atlantic Refining Company, Dept. E-4, at the nearest office listed below.



Philadelphia  
Providence  
Charlotte  
Chicago

In the West: L. H. Butcher Co.  
In Canada: Naugatuck Chemicals  
Division of Dominion Rubber  
Company, Ltd.

In Europe: Atlantic Chemicals SAB,  
Antwerp, Belgium  
In South America: Atlantic Refining  
Company of Brazil, Rio de Janeiro

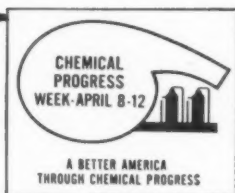


creating . . . consuming . . .  
you're enjoying chemical progress

The benefits of America's astounding chemical progress have a happy faculty for getting around. Say you manufacture, assemble, market an industrial or consumer product. From raw materials to finished item, an infinite variety of versatile chemicals speed processing, reduce costs, upgrade quality, enhance saleability. Yearly, break-throughs that come in chemical research and technology launch entirely new businesses or bring fresh vigor to old ones.

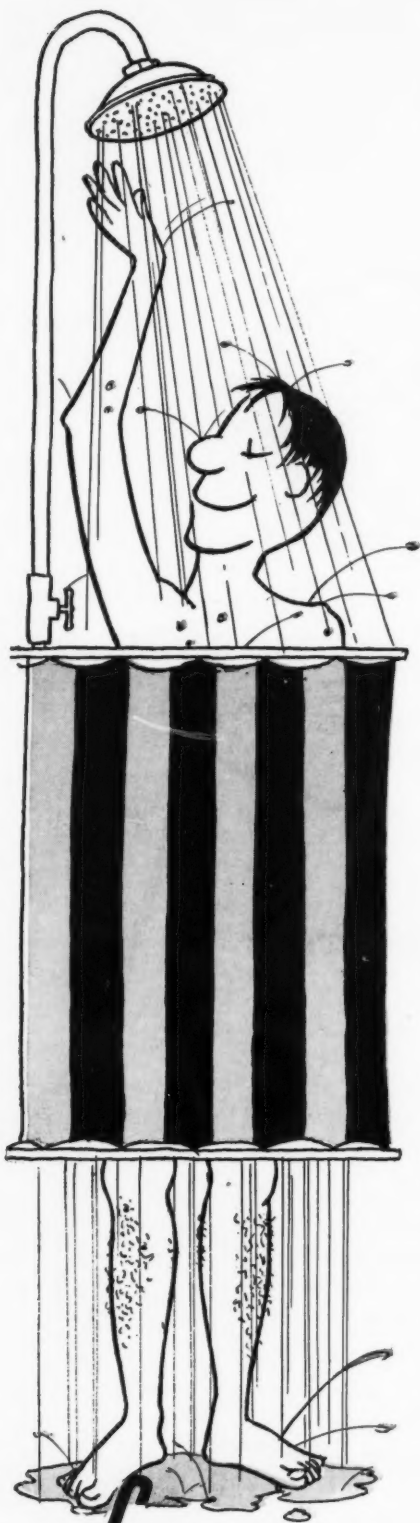
Then there's you, the consumer . . . rich—through chemicals—in health, food, housing, furnishings, clothing, and in many other added things that make living today easier, more convenient and enjoyable.

Columbia-Southern invites to your attention the current observance of the fourth annual Chemical Progress Week. When you create . . . when you consume . . . chemical and allied products are involved.



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CHEMICAL CORPORATION**  
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY  
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IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division



*You can buy all the  
water you need locally ...  
Don't pay to ship it  
in with your T.S.P.!*

Some users *must* have T.S.P. crystals. We sympathize with them and hope they are located near a producing point.

All other users pay 56% higher shipping costs than they need to pay ... just for shipping water. T.S.P. crystals are 56.9% water, only 43.1%  $\text{Na}_3\text{PO}_4$ !

If you use T.S.P. crystals and can make the common-sense switch to Westvaco® Tri-sodium Phosphate Anhydrous, you can save this 56% and substantially cut material costs, too! Westvaco T.S.P. Anhydrous will save you more than \$1.30 per hundred-weight than if you purchased the equivalent amount of  $\text{Na}_3\text{PO}_4$  in crystal form.

For a delivered-price quotation that will enable you to determine your own savings accurately, phone, wire or write your nearest Westvaco office today!

**tmc**

**Westvaco Mineral Products Division**  
FOOD MACHINERY AND CHEMICAL CORPORATION

**chemicals**

161 E. 42nd St., New York 17 • Chicago Cincinnati Houston Philadelphia Newark, Calif.

BECCO peroxygen chemicals • FAIRFIELD pesticide compounds • FMC organic chemicals • NIAGARA insecticides, fungicides and industrial sulphur • OHIO-APEX plasticizers and resins • WESTVACO alkalis, solvents, phosphates, barium and magnesium chemicals





**Poor color** in this sample of sodium toluene sulfonate resulted from use of competitive nitration-grade toluene.



**The clear solution** of sodium toluene sulfonate shown above was prepared from high-purity Sunoco Toluene.

## FOR HIGHER PURITY END PRODUCT AND INCREASED YIELD, USE SUNOCO TOLUENE

Hydrocarbon Chemicals Inc., Newark, New Jersey know that quality of raw materials is the determining factor in the quality of the end product.

In keeping with their reputation for high standards, they tested many competitive grades of toluene. They found Sunoco® Toluene was the highest quality material available and that it consistently gave them higher yields and purer solutions of sodium toluene sulfonate.

The reason: *Every shipment* of Sunoco Toluene surpasses the most rigid standards set up by the industry. Make your own comparison test from the specification chart listed here. If you use toluene in your processing, it will pay you to try Sunoco Toluene. You can see for yourself why it helps solve so many problems of color and purity in end products.

For complete information, see your Sun representative . . . or write for Technical Bulletin 27. Address SUN OIL COMPANY, Phila. 3, Pa., Dept. I-6.

### MAKE YOUR OWN COMPARISON TEST

	TYPICAL ANALYSIS	
	SUNOCO TOLUENE	YOUR PRESENT TOLUENE
Olefin Content		
Acid Wash . . . . .	1	
Bromine Index . . .	Negligible	
Paraffin Content . . .	0.0	
Residue after		
Evaporation . . . .	Not Detectable	
Thiophene Content . .	None	
Sulfur Content . . . .	0.001% by wt.	

**OTHER SUNOCO PETROCHEMICALS:** Benzene, Xylene, Naphthenic (Sunaptic) Acids, Propylene Polymers, Anhydrous Ammonia, Sulfur, Petroleum Sulfonate, and Liquid Petroleum Polymer (PDO-40)



INDUSTRIAL PRODUCTS DEPARTMENT  
**SUN OIL COMPANY** PHILADELPHIA 3, PA.  
©SUN OIL CO.

In Canada: SUN OIL COMPANY LIMITED, Toronto & Montreal

# In Restaurant Cleansers Too, THE KEY IS CMC



Lakeseal RESTAURALL utility detergent powder utilizes the unique dirt-suspending properties of CMC to keep restaurant fixtures gleaming bright. By adding Hercules® CMC to this and other detergent formulations, Finger Lakes Chemical Co. insures uniformity of cleaning action and dispersion of ingredients. Hercules CMC helps to 'float away' grease and grime particles loosened by detergent action, makes detergent formulations more effective.

CMC has found wide application in soap and detergent products marketed by leading manufacturers. As a suspending agent, water binder, viscosity control agent, or film-former, CMC is being utilized in the manufacture of paper, ceramics, textiles, and pharmaceuticals. Perhaps Hercules CMC can improve the efficiency of your product and enhance customer acceptance. Write Hercules for a sample quantity of CMC and complete technical information, mentioning products you market.

## FLOATS GRIME AND GREASE AWAY

Restaurall detergent powder is a special formulation for all restaurant cleaning needs marketed by Finger Lakes Chemical Company, Etna, New York.



Virginia Cellulose Department

**HERCULES POWDER COMPANY**

INCORPORATED


961 Market Street, Wilmington 99, Delaware



V557-1

# ... in brief


as the editor sees it . . .

 SHAMPOOS . . . What's happened to shampoo sales? According to the Soap Association figures, all shampoo sales in 1956 dropped off sharply. Soap shampoos took a real nose dive, losing something like 62 per cent of their 1955 volume. Even detergent based shampoos which we understood were going great guns, lost 14 per cent of their 1955 market.

Now, by and large, shampoos are luxury items which sell well when general economic conditions are good. Conversely, in tough times, shampoo sales have always been off. People probably wash their hair with ordinary toilet soap. But 1956 was a good year with earning power high and few people out of work. So what happened?

Granted that the Soap Association figures for shampoos represent a relatively narrow segment of the market, but from year to year, they should be comparable and give a fairly true picture of the market. If the story which they tell is reasonably correct, the facts are disconcerting to say the least. Maybe Mrs. McGuff, the great American woman, has changed her hair washing habits. Or maybe some of the big time marketers cut their advertising budgets.

\* \* \* \* \*


 ODOR UNPLEASANT . . . This was the comment made about eight out of ten paste type oven cleaners in a recent product survey published by Consumer's Research Bulletin. Granted that we may not agree with CR's method of testing and that this matter of odor preference is a subjective thing, we have a hunch that most people will agree on what they consider an unpleasant odor. We might even go one step further and say that oven clean-

ers are not the only offenders in this respect. Many other chemical specialties could also be indicted on the same grounds.

How a marketer in this day and age can and does sell a product that literally stinks is a mystery to us. Women in this country are odor conscious. The first thing they do when they examine a product—particularly a new one—is to sniff it. If the odor is unpleasant they are inclined to put it down and forget it.

With all the fine technical work that has been and is being done in the perfume laboratories in the U.S., there seems to be no excuse for a product that smells bad, something a great many specialty firms still have to learn.

\* \* \* \* \*

 AEROSOL OUTPUT . . . As far as a few of our best guessers in the aerosol field are concerned, the growth in pressure packaging in 1956 was approximately the same as in 1955, about 25 per cent. The total of aerosol packages produced in 1955 was about 240,000,000. This would bring 1956 to about 300,000,000. Once the CSMA aerosol survey figures are in and compiled, we naturally will have a clearer picture of the market. And we have a hunch that it may show some variations from former years.

For a couple of months in 1956, aerosol sales showed a marked decline, but in the last two months of the year, they recovered sharply and supposedly more than made up for any previous losses. Insecticides for 1956 should show relatively little gain, if any. It was a poor insecticide year all around. Carry over into 1957 is known to be heavy. But for room deodorants, hair lacquers and glass cleaners, we believe that

# PILOT HD-90

**CONCENTRATED  
QUALITY  
CUTS COSTS**

**MAKES  
LIQUID DETERGENTS  
EASILY**

QUICKER AND BETTER TO  
PRODUCE LIQUID DETERGENTS  
FROM PILOT HD-90 FLAKE

because Pilot HD-90  
REQUIRES NO STORAGE TANKS  
IS READILY SOLUBLE  
MAKES CLEAR SOLUTIONS  
HAS HIGH SUDSING AND EMULSIFYING  
HAS EXCELLENT PERFUMABILITY—ODORLESS BASE  
REQUIRES LESS LABOR AND INVESTMENT  
IS AVAILABLE IN ANY QUANTITY

*because it's*

**COLD PROCESSED  
HIGH ACTIVE ALKYL ARYL SULFONATE**  
90.0% minimum active drum dried flake

Only cold processing at temperatures below freezing can produce *concentrated uniform* sulfonation! Every micelle produced in solution from Pilot HD-90 is homogeneously effective for such use as household sudsers, industrial detergents and scouring powders. Cold processing eliminates undesirable side reactions, hydrocarbon odors, and any rearrangement of the molecular structure.

Pilot HD-90's high quality in the making and mixing of dry products is equally applicable to the manufacture of liquid detergents. Pilot HD-90's concentrated and sulfate-free properties *eliminate* filtering; give liquids the highest sudsing and cleaning powers obtainable. Write for formulas and samples. Only Pilot HD-90 Detergent features *this premium quality at competitive prices!*

Packed in polyethylene lined fibre drums and in 5-ply paper bags.



**PILOT** *California Co.* Manufacturers of  
215 WEST 7th STREET • LOS ANGELES 14, CALIFORNIA


Sulfonic Acids  
Dodecyl Benzene Sulfonates  
Sodium Toluene Sulfonate



1956 moved well ahead of 1955. In some industrial and automotive products, we have a hunch a sharp gain was scored.

All things considered, our guessers have come up with a figure of 300,000,000 for 1956. It will be interesting to note how close this guess comes to the CSMA figures when published.


\* \* \* \* \*

 POISONING . . . The New Jersey Pharmaceutical Association has a plan under consideration to aid in the prevention of accidental poisoning of children by certain drugs, cosmetics and household chemicals. The plan calls for the use of a bright red sticker on certain packages bearing the wording, "Keep out of the reach of children!" A list of products to which such a sticker should be applied will probably be made up by pharmacists for the Association.

We believe that the plan is a good one, too good to be confined to one state. Maybe other states will follow suit. But in the meantime, manufacturers, repackers and marketers of these drug and chemical products might well get into the act once they know which products are to be included in the "danger" list. Such would make the use of this warning slogan countrywide in short order and would relieve the retailer of the responsibility of labeling individual packages, often impracticable and inconvenient.

Use of such a slogan obviously is an on-the-spot warning to careless parents. If ignored by them, it nevertheless helps to lift some of the responsibility for untoward happenings from the shoulders of the manufacturer or marketer.


\* \* \* \* \*

 SURVEYS . . . Chemical Specialties Manufacturers Association is engaged currently in making annual surveys of several fields which come into the scope of its activities. These embrace aerosols, household and industrial insecticides, floor products, and certain automotive specialties. Figures are gathered and compiled by Ernst & Ernst, an old and reputable firm of accountants, which do much of this type of work for various industries. No figures from individual reports are ever revealed to any person

except a member of the accounting firm. No confidence in reported figures is ever known to have been violated.

Total figures for these surveys supply information of great value to every firm in the industry. They give a foundation for future production and sales plans which can be established in no other way. But only through the cooperation of all firms in the industry are the over-all figures valuable. So it is urged upon all who receive questionnaires to fill them in and send them to the accountants in the envelope provided, whether the firm is a member of CSMA or not. The total figures will be published and made available for everybody. And the integrity of CSMA stands behind the confidence with which individual returns will be treated.

\* \* \* \* \*

 SLOW PAY . . . The problem of slow pay in the field of soaps, detergents, sanitation chemicals and allied products is rearing its ugly head higher and higher these days. Manufacturers who sell primarily to jobbers and to the industrial field report that this matter has reached the acute stage since the first of the year. In some of these markets, business has dropped off and this has tended to compound the credit problem. Many jobbers appear to be short of cash and are making their manufacturer-suppliers sweat it out. Sixty days has not been uncommon heretofore, but now ninety days or longer seem to have become regular practice.

Once again, it's the old story. Put the heat on the customer to get the money and a customer may be lost. Don't apply the heat and it may take six months to collect. Nevertheless, no manufacturer can afford to extend indefinite credit. Obviously there are and always have been those who would finance their businesses with suppliers' money if they can get away with it. With unusual interest we note that most larger suppliers have rigid credit rules and make their customers live up to them. Then why should a smaller supplier be hung up for 120 days or longer? We feel that the time is here to toughen up on collections before a bad situation becomes worse.

There are no mental gymnastics at all when you formulate cleaning compounds with TRITON surfactants. With the greatest of ease, you'll find that TRITON X-100 dissolves in water and TRITON X-45 in oils . . . that TRITON GR-7 takes to dry cleaning systems . . . and TRITON X-123 proves stable on dry caustic.

The real gymnastics come later when the versatile TRITON troupe puts on a dazzling display of cleansing, foaming, and other characteristics. Would you like to see a dress rehearsal? Write today for details.

**Chemicals for Industry**  
**ROHM & HAAS**  
**COMPANY**  
 WASHINGTON SQUARE, PHILADELPHIA 5, PA.  
 Representatives in principal foreign countries

TRITON is a trade-mark,  
 Reg. U.S. Pat. Off.  
 and in principal foreign countries.

## as the reader sees it . . .

### **Impregnated with Peace**

Editor:

I have read your "Tale Ends" on page 182 of the January issue of *Soap and Chemical Specialties*.

I have the honor to inform you that: (1) This year's Christmas card was not impregnated with soap. Because the Lever and Palmolive people (I suppose that both names are familiar to you) have done so much advertising of synthetic detergents, soap in Italy already is obsolete (like in the States). (2) My Christmas card wishes everybody "Pax hominibus bone voluntatis" which means "Peace to all people of good will."

Vice versa, my Christmas card is impregnated with this peaceful idea, and I think this idea also represents the idea of all Americans from Mr. President down.

ANDREA POLLITZER  
Salita Trenovia 8  
Trieste, Italy

*In the "Tale Ends" item referred to by Mr. Pollitzer, we mentioned*

*that we had received his unusual Christmas card, which we thought might have been printed on paper impregnated with soap. Stranger things have happened. Ed.*

### **"Vaseline" Trade Mark**

Editor:

Our attention has been called to an incorrect reference to our registered trade mark "Vaseline" appearing in the December, 1956, issue of *Soap & Chemical Specialties*.

On page 223, the cut, Figure 10, carries the words: "Apply inverted hanging-drop slide containing *vaseline* (italics ours) around well to cover glass".

While we appreciate the publicity value of this mention, we wish to point out that "Vaseline" is our registered trade mark which we have used exclusively for more than 80 years to distinguish products of our manufacture such as petroleum jelly (petrolatum), hair tonic, lip stick, pomade, etc., from the products of all other manufac-

turers. Therefore, you can readily see that the use of "Vaseline" as a synonym for petrolatum or petroleum jelly is not correct.

In this connection, you will, no doubt, be interested in the following:

1. "Vaseline" does not appear in the U. S. Pharmacopoeia, whereas term "petrolatum" does appear therein.

2. The following definition from the latest *Encyclopedia Britannica*: "Vaseline", trade-mark of Chesebrough Manufacturing Company, Cons'd.,\* used upon its line of products the best known of which is petroleum jelly . . ."

3. A leaflet is enclosed which explains the trade mark character of "Vaseline" more fully.

\* Company name has been changed to Chesebrough-Pond's, Inc.

We know that you are desirous of correcting any inaccuracies in your publication and that you would not knowingly encroach in any way upon the valuable trade mark rights of anyone. Therefore, we ask that in the future you either delete our trade mark and substitute the generic term, "petroleum jelly," or, if you wish to specify our brand of petroleum jelly the correct way to refer to it would be "Vaseline" petroleum jelly.

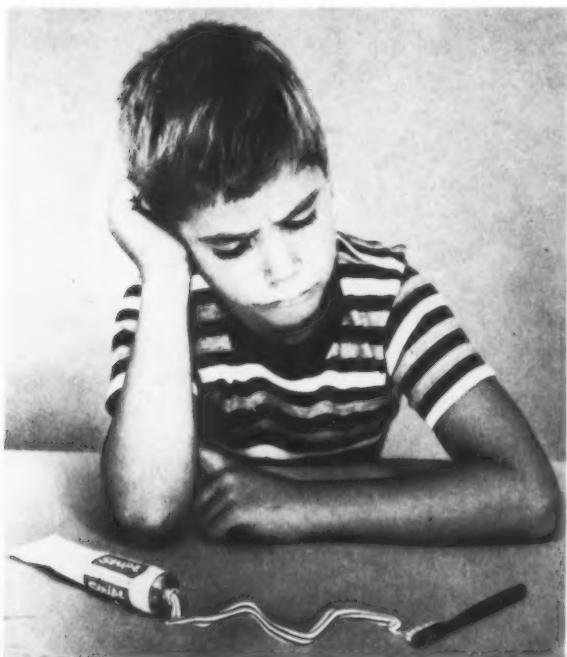
You will appreciate that the use of our trade mark "Vaseline" without the generic term of the product intended such as petroleum jelly, hair tonic, pomade, lip stick, etc., is misleading and the Courts hold that in order to sustain trade mark rights it is incumbent upon the owner of a trade mark to be forever diligent and to take steps to stop all misuses.

May we look forward to receiving your assurance that you will cooperate with us in seeing to it that future publications will be corrected as suggested.

F. J. McGROARTY,  
Secretary,  
Chesebrough-Pond's, Inc.,  
New York.

P.S. A similar letter has been written to Mr. Frank B. Engley, Jr., author of the article "Mercurials as Disinfectants."

*We have written to Mr. Mc-  
(Turn to Page 56)*



Striped toothpaste, believe it or not, is the newest addition to the line of Lever Brothers Co., New York. The new Lever dentifrice, appropriately called "Stripe" emerges from the tube in red and white stripes. Product is being test marketed in the San Diego, Calif. area. "Stripe" is designed to make the kids brush their teeth longer and oftener.



## CAUSTIC SODA CAUSTIC POTASH

Save time —  
get BOTH from Hooker

Using both? Streamline your purchasing by ordering them from Hooker.

Cut paper work, save time with *one* order, *one* billing, *one* responsibility.

For technical data and shipping information on either chemical, or both, write us or phone the nearest Hooker sales office.

New York 17, N. Y., 60 East 42nd Street . . . . . MUrray Hill 2-2500  
Niagara Falls, N. Y., 112 Union Street . . . . . NIagara Falls 6655  
Chicago 2, Illinois, 1 North LaSalle Street . . . . . CEntral 6-1311

### Caustic Soda

LIQUID: 50% and 73%, in tank cars; 50% in tank wagons and drums.  
Barge shipment of 50% liquid can be arranged.

FLAKE: Regular, fine, crystal, granular.

SOLID

### NIALK® Caustic Potash

LIQUID: 45% to 52%, in tank cars and drums.

FLAKE OR SOLID: 85% and 90%.

SPECIAL 90% FORMS: Granular, Broken, Crushed, Powder, Walnut.

#### HOOKER ELECTROCHEMICAL COMPANY

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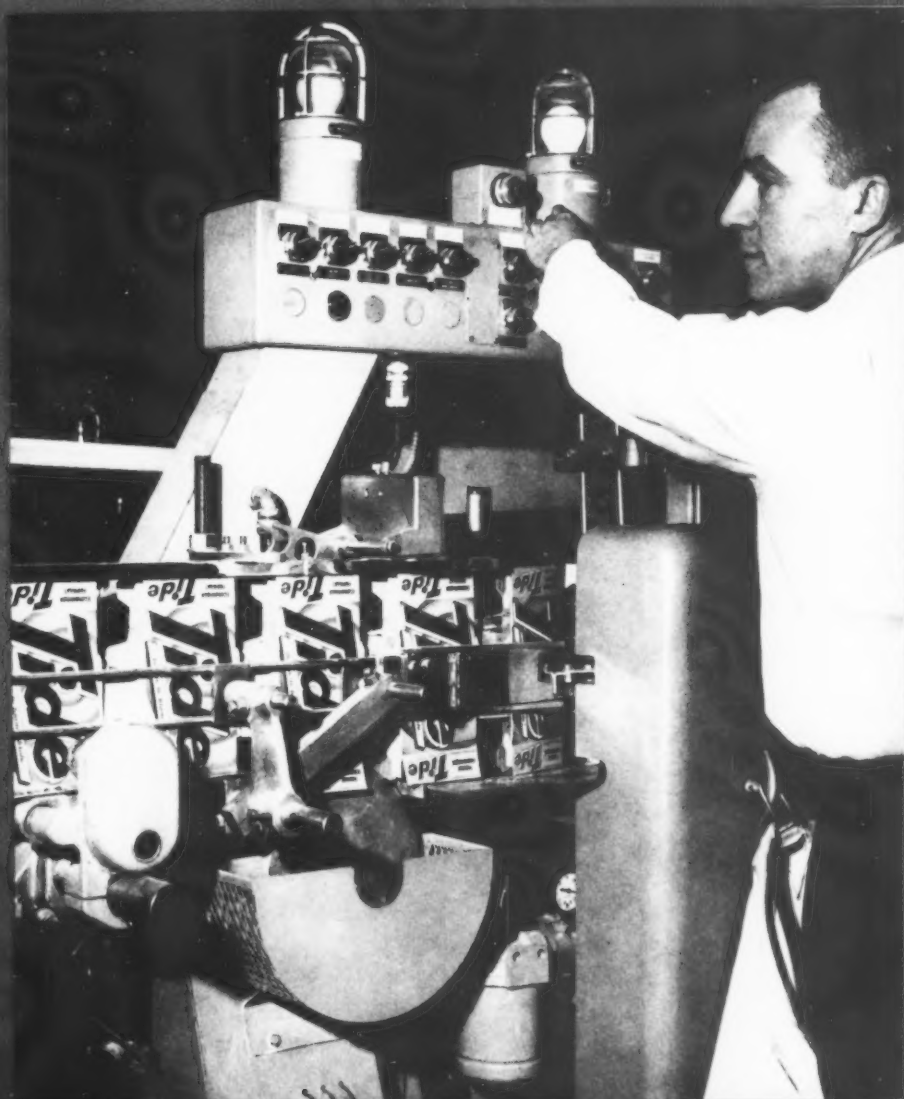


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# Detergents . . . Cleansers . . . Soaps . . .

Speed is keynote at new Procter & Gamble detergent plant in Malines, Belgium. This automatic machine fills more than four cartons a second. For other photographs and description of plant see story beginning on page 50.

Aerosols  
Detergents  
Dishwashing compounds  
Floor scrubs  
Glycerine  
Hand cleaners  
Laundry soaps  
Liquid soaps  
Metal cleaners  
Potash soaps  
Scouring cleansers  
Shampoos  
Shave products  
Soap powders  
Starch  
Steam cleaners  
Medicinal soaps  
Textile detergents  
Toiletries  
Toilet soaps  
and other detergent  
and soap products





# MIRANOL

## "M" SERIES\*

### OF AMPHOTERIC SURFACTANTS

FOR EVERY PURPOSE

**MIRANOL**

$$\begin{array}{c}
 \text{N} \quad \text{CH}_2 \\
 \parallel \quad \diagup \\
 \text{R}-\text{C} \quad \text{N} \\
 \quad \quad \diagdown \quad \diagup \\
 \quad \quad \text{OH} \quad \text{CH}_2\text{CH}_2\text{ONa} \\
 \quad \quad \quad \quad \text{CH}_2\text{COONa}
 \end{array}$$

R IS THE FATTY ACID DERIVATIVE RADICAL

## MIRANOL CM CONC.

**FOR LIQUID  
STEAM CLEANING  
COMPOUNDS**

**REMOVES  
GREASE  
AND WAXES  
QUICKLY  
AND EASILY**

MIRANOL CM CONC. permits the formulation of liquids containing up to 20% Alkalies. This feature allows the formulation of liquid steam cleaning compounds. Because MIRANOL CM CONC. plates itself out in mono-molecular layers against metal, yet remains highly water soluble, it will remove all soil by lifting it off rapidly rather than using a slow, penetrating process from the top.

When formulated with silicates MIRANOL CM CONC. will not attack aluminum regardless of alkalinity or temperature.

MIRANOL CM CONC. steam cleaning compounds are, therefore, ideally suited for cleaning aluminum airplanes, truck bodies and railroad cars, etc.

**IMPORTANT:** A LIQUID STEAM CLEANING COMPOUND  
CAN NOT CLOG COILS OR VALVES

MIRANOL CM CONC. formulations are not only corrosion proof but are also corrosion preventives.

MIRANOL CM CONC. is further recommended for other liquid heavy duty cleaner formulations where the ease of handling a liquid rather than the necessity of dissolving a powder is a desirable feature.

*Manufacturers of Surface Active Agents*

\*U.S. Patent 2,528,378

**SEND FOR  
MIRANOL  
SAMPLES  
AND SPECIFIC  
FORMULA  
SUGGESTIONS  
TODAY**

**THE MIRANOL CHEMICAL**  
INCORPORATED  
275 COIT ST., IRVINGTON, N. J. Tel: ESsex 4-2500





Suds rising from a Philadelphia sewage disposal plant "alarm residents in the vicinity of plant, as tremendous billows of suds rise after too much detergent got into the unit," says the caption

that accompanies this United Press photograph, which appeared in many newspapers. Press is quick to blame detergents for excessive foaming, which soap industry is spending \$200,000 to study.

## Detergents in Sewage--II

**A**T THE convention of the Association of American Soap and Glycerine Producers in New York on January 27, 1956, Frank J. Coughlin (1), as chairman of the technical advisory committee of the Association, reviewed some of the problems associated with synthetic detergents in sewage and water treatment. He reported to you the initiation of research by the AASGP at four universities as well as the creation of two sub-committees to study analytical methods for accurate determination of alkylbenzene sulfonate and phosphates present in low concentrations in water and sewage.

\* Paper presented before 30th annual meeting, Assn. American Soap & Glycerine Producers, New York, Jan. 24, 1957. Mr. Moss is vice-chairman of the technical advisory committee of the Soap Association.

**By Henry V. Moss\***

Monsanto Chemical Co.

For better coordination of technical activities within the Association on these investigations, some of the previously existing committees have been reorganized and additional ones have been created. The most significant organizational change has been the formation of a steering committee composed primarily of members of the parent technical advisory committee; functions of this group are adequately described by the official title of this group: "Research Committee of the Technical Advisory Committee."

A brief review of progress

can be made at this time without being able to give you a comprehensive report on the various university research projects, pending completion and ultimate publication of the work.

### **Degradation of ABS**

**T**HERE has been concern over the resistance to biological degradation of synthetic detergents that find their way into conventional sewage plants and more recently Hammerton (2), and Sawyer, et al (3), have reported laboratory investigations on biological degradation of a variety of synthetic detergents including alkylbenzene sulfonate (henceforth referred to as ABS). House and Fries (4), in tracing the fate of radioactive ABS

introduced in a small activated sludge sewage treatment plant found significant ABS removal by secondary treatment.

Because of the predominance of ABS as the organic active constituent of synthetic detergent formulations and the apparent greater resistance of this compound to biodegradation (*ibid.*), attention has been focused, in research investigations sponsored by the AASGP, on this product.

With the evidence that ABS is after all not completely resistant to biodegradation, the AASGP research project at M.I.T., under the direction of Professors Rolf Eliassen and Ross E. McKinney, has as its objective the isolation or development of strains of bacteria which could metabolize and thereby degrade ABS, either preferentially or at least concurrently with other organic material in domestic sewage. Thus, by use of such bacteria in normal secondary stages of existing sewage disposal plants, a solution to the problem of portions of ABS passing undestroyed into the sewage effluent would be achieved.

In light of previous experience at M.I.T. in similar areas, accomplishing the objectives of the project looked promising and experimental studies were undertaken using a standard ABS of the polypropylene type supplied by the committee.

At this stage of the investigation it can be said that a variety of identified common soil-born bacteria normally found in activated sludge utilize ABS at a slow rate and that some proportion of ABS, yet to be fully defined, that enters conventional sewage treatment plants can be expected to be altered by bacterial decomposition. Whether larger amounts of entering ABS are partially destroyed to a non-surface active compound is a possibility to be explored.

A significant observation is that ABS present in concentrations normally found in domestic sewage is not toxic to activated sludge bacteria; a question that has been raised from time to time.

**Alkylbenzene sulfonate in concentrations now present in sewage does not affect bacterial life nor otherwise significantly affect efficiency of sewage plant operation.**

Investigation of specialized strains of bacteria capable of completely destroying ABS is continuing.

The University of California project, under the direction of Professors E. S. Crosby and P. H. McGauhey, has as its primary objective the determination of the fate of ABS in the environment and concentrations common to normal sewage treatment. In this work, the operation of a typical commercial sewage treatment plant is simulated and to avoid manipulative difficulties still inherent to colorimetric analysis of ABS in sewage in small concentrations, the use of radioactive ABS combined with extractive procedures is employed to trace ABS through a sewage treating system. By material balances it is intended to show where and in what form the ABS originally entering the sewage plant is discharged.

The type of operation being investigated, which is typical of many sludge treating plants, consists of (1) primary settling in which settleable solids are removed and sent to an aerobic digester, (2) secondary treatment with activated sludge where biological degradation takes place and (3) secondary settling where activated sludge solids are separated and either returned to the system or discharged to the aerobic digester to maintain a constant solid content in the secondary treatment system.

A great deal of pioneering work has been required in the development of the radioactive,  $S^{35}$  tagged, ABS technique which is proving to be a useful and powerful tool not heretofore available for carrying out investigations of this type.

Through use of this tech-

nique information is being developed on the influence of operating variables of a conventional sewage plant upon the degree of removal of entering ABS. For example, information is being obtained on the amount of ABS adsorbed by solids settled out at various stages of sewage treatment and the effect of aeration time (possibly related to sludge age) and sludge withdrawal upon removal or biological degradation of the ABS.

It is indicated that the range in ABS concentration which might be expected in sewage produces no important effect on the percentage of ABS removal nor, in agreement with indications from the work previously mentioned at M.I.T., is there any apparent effect from such levels of ABS upon the health of the activated sludge solids.

From present indications, it is expected that upon completion of the current project at the University of California a comprehensive picture will be available on how much and to what degree ABS is destroyed in conventional sewage treatment and where the various fragments go. There will also be indications that the degree of ABS removal is dependent upon a number of factors, some of which might be varied in the operation of an existing plant.

From the work on these two projects (M.I.T. and the University of California) there is evidence that if not completely decomposed, a considerable proportion of ABS entering a sewage plant will be degraded biologically so that it no longer will be identified as ABS and presumably will therefore no longer be surface active.

Of the several questions concerning possible adverse effects of synthetic detergents in the

water and sewage area, probably the most emotional has been that directed toward the problem of frothing in sewage treatment plants. Complaints of frothing, with accompanying allegations that synthetic detergents were the cause, go back as far as 1947. These complaints strikingly paralleled the increase in domestic sales of detergents. This has been one problem which readily manifests itself to treatment plant operators and others in the field of sanitary engineering.

It is, therefore, not surprising that foaming in sewage plants has probably caused the greatest outcry against detergents although it is now generally classed as no more than a nuisance and is being coped with, with increasing success, by such devices at the command of the operator as control of suspended solids, use of surface sprays and foam breaking additives.

Frothing has also been the subject of considerable experimental investigation of which more recent studies are those of Bogan and Sawyer (5) and Munro, et al (6) wherein the latter comments "that more work should be done on the factors which cause foaming in the absence of any detergent."

As a result of this recognized important public relations problem, the research project sponsored by the AASGP at the University of Wisconsin, under the direction of Professor G. A. Rohlich, is directed to determining the various causes of frothing in sewage treatment plants and thereby to seek means of eliminating or at least minimizing the froth nuisance.

To date, and probably through termination of the current contract in June of this year, studies will have been confined to causative phases of the question with little if any time devoted to establishing means of diminishing froth.

As essential background, a questionnaire directed to several hundred activated sewage treatment plants in the United States showed that in the majority of replies re-

ceived, frothing occurred to some degree and it was indicated that frothing is more prevalent during periods of low flow and weaker strength sewage. A substantial number of those who replied to the questionnaire cited factors other than detergents as being, in their opinion, responsible for frothing in their plants. The large majority of those reporting frothing expressed the belief that frothing has no effect on plant efficiency.

In a field survey of several activated sludge plants it was also observed that frothing was more prevalent during periods of low flow, although frequently ABS content was lower at those times than during high flow. In addition, there was an indication that at a relatively constant level of ABS there was considerable variation in the degree of frothing with one sample showing none at all. One interesting observation is the fact that at one plant which has parallel aeration tanks receiving exactly the same sewage, frothing at times occurred in one but not in the other aeration tank. Among other factors investigated, it is indicated from this survey that increase in organic nitrogen content contributes to foaming tendencies.

Laboratory investigations still in progress, to determine the effect of basic sewage components on frothing, point to the fact that proteins and protein degradation products may play an important part in accentuating or stabilizing foam. This is in agreement with the previously mentioned observation relating to organic nitrogen content.

It is anticipated on completion of these investigations that whereas ABS will certainly not be eliminated as a factor in the foam picture, it will by no means be found responsible for all the ills put at its doorstep. It will not be surprising to conclude, as a result of this work, that foaming in sewage plants would not cease if by some means the American public were made willing to forego com-

pletely the use of synthetic detergents.

The original objective of establishing the various factors that affect frothing and seeking means of controlling it is still before us.

### Effect of Phosphates

It is known that modern synthetic detergents contain, as relatively major constituents, inorganic condensed phosphate salts in the form of alkali tripoly and pyrophosphate. These salts possess unique properties that enhance functional performance of detergent formulations.

It has been suspected that condensed phosphates emanating from domestic waste-wash-waters could ultimately find their way through surface streams into water treating plants and because of the inherent peptizing and dispersing properties of the condensed phosphates, interfere with normal coagulation and sedimentation operations practiced in conventional water purification.

Among investigations in this area are those of W. L. Lea, et al (7), R. S. Smith, et al (8) and Howells & Sawyer (9). Lea, et al, found it possible to remove most of the soluble phosphate from sewage plant effluent by the use of common coagulants and investigated mechanisms involved in the removal of phosphate from solution. Smith and co-workers found in laboratory experiments that "complex" phosphates in low concentrations interfere with alum coagulation but that this interference can be overcome by increased alum dosage. Howells & Sawyer (*ibid.*) found sodium tripolyphosphate and tetrasodium pyrophosphate when present in concentrations of two to 10 ppm in freshly prepared solutions of a natural water (which is presumed by this author to be relatively free of hardness), to interfere with alum coagulation which interference could be overcome by heavier alum dosage.

Except for the work by Lea, et al, who employed sewage effluents

with naturally contained phosphates, it should be observed that the other investigators cited conducted experiments wherein the condensed phosphates were added as such.

It is known that all inorganic condensed phosphates are subject to hydrolytic degradation to simple orthophosphates which do not possess to the same degree the properties afforded by the parent compounds and that the rate of degradation is affected by several environmental factors (Van Wazer, et al (10)). Furthermore, Karl-Kroupa, et al (11) in a presentation before the Division of Water, Sewage and Sanitation at the spring ACS meeting in Dallas (1956) reported the accelerating effect of various common living organisms upon degradation of tripolyphosphate.

It is, therefore, possible that complex phosphates in synthetic formulated detergents are appreciably altered in their circuitous and varied exposure from their use in the home to the raw supply of a water treating plant.

Accordingly, the research project sponsored by the AASGP at the University of Illinois, under the direction of Professor Jess C. Dietz, has the following major objectives: First—to establish the levels and kinds of phosphate normally present in typical surface waters that are known to receive sewage plant effluents and that serve as raw water supplies for water treating plants.

Second—to determine whether complex phosphates persist as such or through their passage through sewage plants, surface streams and ultimately to water treating plants, are decomposed to simple relatively inactive orthophosphates.

Third—if complex phosphates do persist and are found to be present in raw water supplies, to determine what effect polyphosphates have on water purification operations when present in concentrations normally found in surface waters.

From a survey still under way of streams in the State of Illinois that are known to receive sewage effluents upstream from the sampling points, it is already indicated that the concentration of condensed phosphate present in surface waters, when determined by the analytical method under investigation by the phosphate sub-committee of the AASGP (whose activities are reported later), will average significantly under 0.5 ppm and that rarely will condensed phosphate concentration exceed 1.0 ppm.

Interesting is the indication that phosphates present in sewage effluents already consist largely of orthophosphate.

Not surprisingly, it also begins to be apparent that phosphates in surface waters originate in a large measure from sources other than sewage effluent, among which a significant proportion appears to come from land drainage.

In laboratory investigations at the University of Illinois on the stability of complex phosphates in natural waters, degradation of the phosphates has been demonstrated; this supports the hypothesis that condensed phosphates do not persist interminably in natural waters.

Despite the present indications of innocuous concentrations of complex phosphates in raw waters, investigations are under way to determine in a pilot plant the effects of polyphosphates in normal and maximum concentrations encountered in raw water supplies upon flocculation and sedimentation processes employed in water purification.

It is expected that with expiration of the existing contract at the University of Illinois in June 1957, the objectives of the project will have been attained.

#### **Analytical Methods**

IT has been and still is realized that accurate and relatively simple methods for analysis of ABS and phosphates in low concentrations in surface waters and sewage are an essential tool in furthering

investigations of the types that have been described. In addition they provide other investigators in these areas with better yardsticks to use in their work.

In last year's report at the AASGP convention Frank Coughlin told of the existence of two committees engaged in developing analytical methods; one for ABS and one for phosphates.

The sub-committee for analysis of ABS, whose chairman is now Ralph House of the California Research Corp., has continued its diligent work and has come up with a method the details of which I will not dwell upon since it is now published (Sallee, et al (12)) and is available to everyone. This method is admittedly complicated, requires specialized equipment and is, therefore, not suitable for routine work. The committee recognizes this and is bravely endeavoring to develop a much simpler but still accurate procedure. This is not easy and it can not be said at this time that the goal is in sight.

Associated with and sparked by the work of the ABS analytical committee, Fairing and Short (13) have developed an alternative method that has been demonstrated to be applicable to analysis of sewage as well as water. Though somewhat simpler than the Sallee, et al, procedure it can hardly be said that this alternative method is truly simple. Search for a method at least as easy as the currently employed "methylene blue" test or the more recent methyl green method of Moore and Kolbeson (14), which are subject to interference caused by other impurities in natural waters and sewage, is still sorely needed.

In the realm of analytical methods for phosphates, the phosphate technical advisory sub-committee, with H. V. Moss of Monsanto Chemical Co. as chairman, which was originally formed in the early summer of 1955 to cope with all public problems purported to be associated with inorganic poly-

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One application of the idea of impregnating tissue with soap is match book type container. Unit is popular with travelers as com-

pact carrying case for soap supply. In addition to use by travelers such packages are widely employed as premiums.

## SOAP SHEETS...

**A** SOAP or synthetic detergent in sheet, tissue, film or leaf form has long been sought as a convenient vehicle for the incorporation of medicinal ingredients. One of the advantages of a cleansing agent in this form is that being disposable it eliminates all risk of reinfection.

Soap sheets have long been made and used for straight washing purposes. They also are rather widely used as novelties for advertising messages, give-aways, premiums, etc. Soap sheets are especially popular for travelers, particularly those going abroad to countries where soap is scarce, expensive, of poor quality or not generally found in public washrooms. Several years ago the secre-

**By Henry Goldschmiedt**  
MEM Co.  
New York

tary of the late Arturo Toscanini, the world famous conductor, called *Soap & Chemical Specialties* for a source of supply of soap sheets when the maestro was planning a trip abroad.

The idea of soap sheets or leaves is old. The first patent in the field dates back to 1883 (1).

Work on soap in this form was originally prompted by considerations of convenience, because soap was not generally supplied in public washrooms in the past. Even today, when it is supplied, frequently it is lacking in mildness, or is poorly perfumed.

For medicinal purposes the mildness of the soap or detergent vehicle is of particular importance: its pH should approximate that of the skin (4.5). For obvious prac-

**Deficiencies of earlier soap sheets comprising cloth or paper impregnated with soap are overcome with new film based on polyvinyl alcohol and PVP.**

tical reasons it is desirable that the soap sheet or leaf should leave as little residue as possible. Lather properties and rinsability in hot or cold water are important considerations. With these requirements in mind the patent literature was searched and yielded nine different types of products which were tested accordingly.

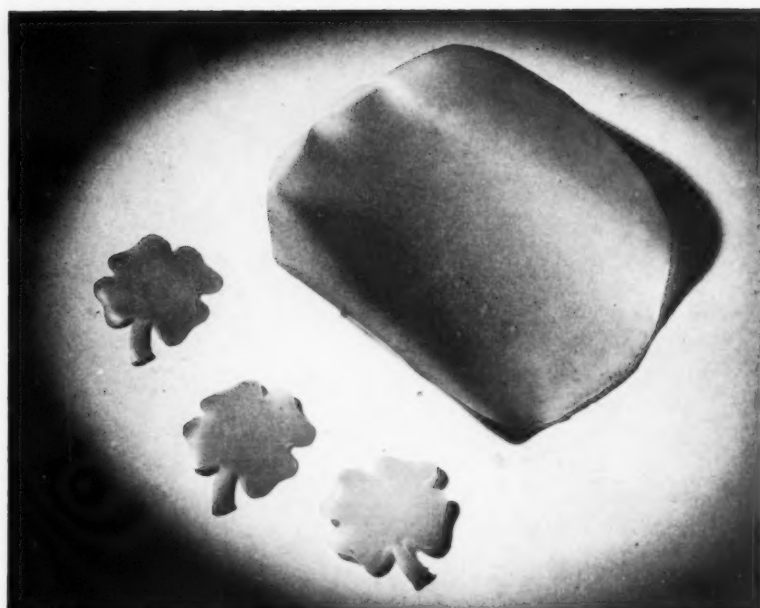
### Soap Paper or Cloth

**B**UCZKOWSKI'S patent (1) describes a method for impregnating fabric or paper with soap. A glycerine soap and a neutral coconut oil soap, made by conventional methods, are reduced to small pieces and dried. Then a mixture of 10 parts by weight of glycerine and 35 parts of alcohol is prepared in a kettle. To this are added 60 parts of the dried glycerine soap and 50 parts of the coconut oil soap. The whole mass is heated to 72°-80°C. and continuously stirred until a homogeneous and fairly fluid mixture is obtained, free from solids and agglomerations. Coagulation may be accelerated by addition of one half to one per cent oil of turpentine, which acts also as a gloss improver in the ultimate product. Perfume, disinfectant, and other medicinal ingredients may be incorporated in this mixture. The liquid mass is poured into a jacketed vessel and kept at a constant temperature of between 72° and 82°C.

Whatever material is to be coated or saturated with this soap mixture must exhibit great capillarity or absorbent power. Paper, linen, silk, jute, cotton, or wool are suitable for such application.

### Oil Film Helps

**T**HIN fabric, cloth or preferably paper, is coated by immersion in molten soap at 40°C. as described in another patent (2). Texture of the sheet must be porous and absorbent. In some instances the amount of soap taken up in one dipping might suffice, but usually a second coating is required. After saturation the sheet is dried.



A film composed of a mixture of a soap and detergent, polyvinyl alcohol and polyvinyl pyrrolidone is completely soluble in hot or cold water. Additives, including medicinals, are readily incorporated. Film can be cut in interesting shapes.

Bound together in "booklet" form or packets, the individual sheets may adhere to each other and be hard to separate. To prevent this, an oil soaked cloth or sponge is passed over the surface of the sheets, leaving a thin film of oil.

An evenly polished surface, with the oil film intact, is obtained by rubbing the sheet with a smooth metal surface or by passing it between heated rollers under pressure. Sheets thus treated will separate readily even after being subjected to considerable pressure and having remained in contact for sometime. After polishing they may be finished in any convenient form. Usually they are packaged as a "booklet" or individual sheets.

### Perforated Fabric

**I**N Sibbit's early patent (3), a porous fabric is immersed in soap solution or emulsion. One dipping does not usually leave a sufficiently thick layer of soap. However, if several layers of soap are deposited on the fabric, each layer being allowed to dry before the next layer is applied, the sheet may crack and the layers of soap may flake off and be wasted.

By perforating the fabric with small holes before immersion

a small sheet can be made to carry a maximum amount of soap without superimposing several layers of soap film. When the fabric or paper has been perforated it is immersed in the soap solution and left to become thoroughly saturated. A thin film is formed on each side and each hole or perforation holds a solid deposit of soap. The sheets are then allowed to air dry or heat may be applied to speed up drying.

### Parchment Soap Sheets

**S**OAP sheets may be made from paper which is thin, flexible when wet, strong, and not subject to surface disintegration by vigorous rubbing as described in Peck's patent (4). Such paper should weigh about .01 pounds per square foot. It may contain a small percentage of sulfate pulp. Such paper is treated in an acid bath and then washed. While sulfuric is preferable, nitric may be added or used alone. This treatment leaves the paper absorbent and very strong when wet. Commercial paper of this type is known as vegetable parchment.

The paper is treated with a hot soap solution so as to coat both sides and impregnate the paper. This may be accomplished by run-

ning the sheet through a bath, by coating it with a brush, or by applying the soap by rollers or by spraying. Sand, pumice, and other abrasive material may be mixed with the soap or rolled in after coating. Cleaning materials such as almond or corn meal may similarly be incorporated in the soap mixture or applied after coating.

### Detergent Cloth

**A** DISPOSABLE cleansing cloth, according to Woronoff's patent (5), may be made by impregnating suitable material with a detergent composition of the following ingredients:

	Parts
Trisodium phosphate .....	40
Glycerine .....	30
Borax .....	20
Sodium thiosulfate .....	15
Sodium carbonate .....	15
Sodium metasilicate .....	10

A small amount of water is added before or after impregnation so that the cloth will be moist. The cloth, which is alkaline in reaction and maintained moist by glycerine, is impregnated with the ingredients listed above. A new, non-woven cloth can be used, which looks like paper but is a rayon and cotton mixture. Said to be soft, absorbent, and of good wet strength, such a cloth is sufficiently inexpensive to be considered disposable.

### Soluble Films

**A**LL of the methods described above rely on paper or cloth as the "skeleton" for the soap leaf or sheet. When the soap is used up the "skeleton" may remain. There are also methods whereby entirely soluble leaves may be manufactured.

### Soap Pouches

**A**N ingenious device is described in still another patent (6). Two continuous strips of porous paper of poor wet strength, such as facial tissues, are placed side by side to form a gutter, which is filled with soap. The strips are then pressed together and run between rollers for sealing. The laminated strips are then dried over heated rollers

and fed to a paper cutter, to be cut into sheets. These may be stacked without sticking. As an alternative, the continuous strips may be rolled. The paper disintegrates when wet and releases the soap.

### Gelatin Soap Films

**F**OUR types of gelatin based soap films are described in Ehret's patent (7): A. Add to a warm aqueous solution of commercial gelatin an aqueous solution of either hard or soft soap. Film the solution and allow to dry. The final product will be a rigid sheet or film of gelatin and soap. The film is readily soluble in water and will have good lathering properties.

B. Mix aqueous solutions of gelatin and soap as in "A." Add a small quantity of binder such as mucilage of gum tragacanth or gum arabic. The resulting film will be tougher, but otherwise similar to the one above.

C. To a solution of gelatin and soap, with or without binder, as described above, a suitable plasticizer may be added such as glycerine or castor oil. The film will be similar to "A" and "B" but more flexible.

D. To a solution made by any of the preceding methods add small quantities of one or several of the following: commercial skin lotion, an antiseptic, a medicinal agent, or a deodorant. These additives may go into solution, emulsion, suspension, or dispersion in the soap and gelatin mixture and are thus incorporated in the finished dry film. To prevent undesirable changes in the organic substances present in this formula a small quantity of boric acid or some other preservative may be added.

### Methyl Cellulose Base

**A** PROCESS for making methyl cellulose based soap leaves is covered in Mabley's patent (8). Dilute 2½ grams of methyl cellulose solution in 100 cc. cool water. Add to this solution 100 cc. liquid or green soap (or the equivalent in

dry soap). When a uniform mixture is formed it is poured and spread smoothly and evenly on a surface to form a thin flexible sheet. 100 cc. of the solution should be spread over an area measuring about 200 square inches and allowed to dry. It is then stripped from the surface and cut to size.

### Resin Based Soap Leaves

**R**OWE'S patent (9) reveals a method for making soap leaves based on plastic resins. A flexible self-sustaining sheet containing a predominating proportion of soap may be made with hot or cold water soluble plastic resin. Films or sheets from soap and a hydrophilic polymerized vinyl compound can be readily prepared by any of the known methods used to produce synthetic sheeting. These include spraying an aqueous solution of soap and polymerized vinyl compound on a suitable surface and drying to form a film or extruding such a solution or paste through a flat nozzle.

Practically any type of soap or synthetic detergent may be used. Sulfates of higher alcohols or condensates of amine compounds for instance are suitable for the purpose. About 20 per cent film forming resin should be used to 80 per cent water.

Although satisfactory films may be prepared from the soap and resin alone it is preferable to incorporate a softening and plasticizing agent for increased flexibility and strength. Glycerol has been found very satisfactory but other softening agents can be used, including ethylene and propylene glycols, starches, sugars, dextrine, sorbitol, etc. The softening agent is usually added in a proportion of about two to 10 per cent of the compound.

### Summary and Evaluation

**S**OAP alone cannot be pressed into thin sheets or films. To obtain a soap film, early patents (1-6) specify absorbent paper or fabric  
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Overall view of Procter & Gamble's new detergent plant in Malines, Belgium. Heating plant in right foreground. Administra-

tive building appears at left. New P&G Belgian plant makes "Tide," "Dreft," "Daz" and "Spic and Span."

### "'Tide's' In" as P&G Opens New

## Detergent Plant in Belgium

**A** NEW factory devoted entirely to the production of synthetic detergents was opened by Procter & Gamble Co. of Cincinnati at Malines, Belgium, on January 30. Built at a cost exceeding \$2,000,000 the new plant makes "Dreft," "Tide," "Daz," and "Spic & Span," all previously established on the Belgian market.

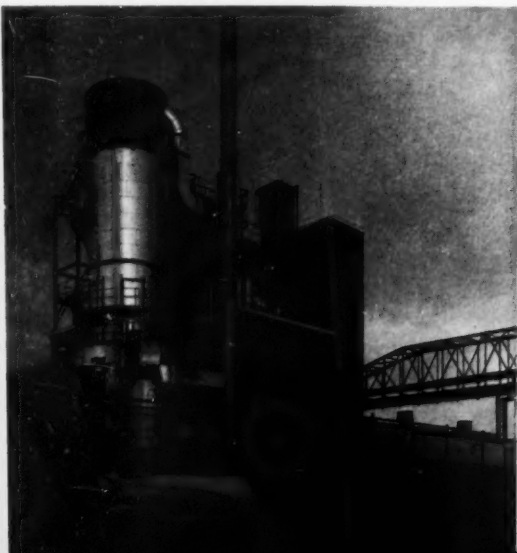
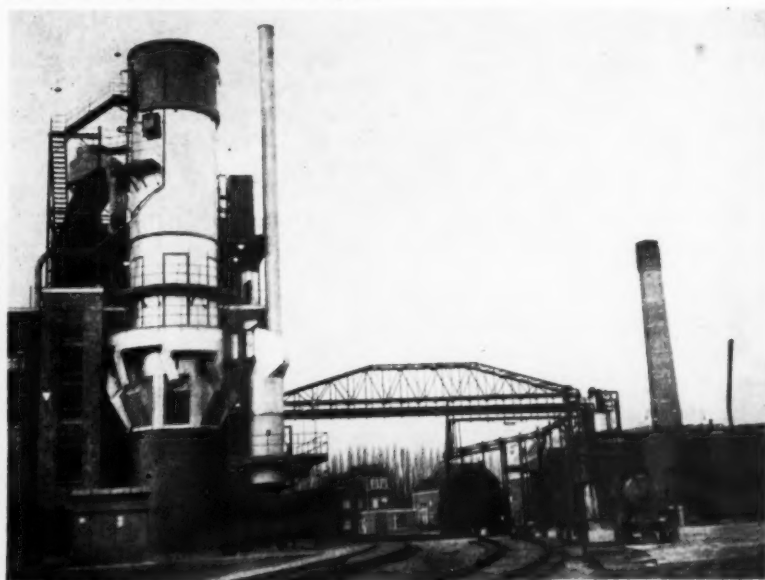
Occupying half of a 10-acre tract of land, the factory consists of five buildings, all in red brick to

View of spray tower with manufacturing plant. Tower is approximately 79 feet high.

comply with the wishes of the people of the City of Malines. There is the plant proper where the synthetic detergents are manufactured; the packaging plant where the

products are mixed and packaged; the warehouse for storage of raw materials and finished products; a building which houses the steam heating plant, workshop for ma-

Soap spray drying tower on left and rail siding, boiler plant, storage tanks, etc. on right at new P&G plant in Malines, Belgium.





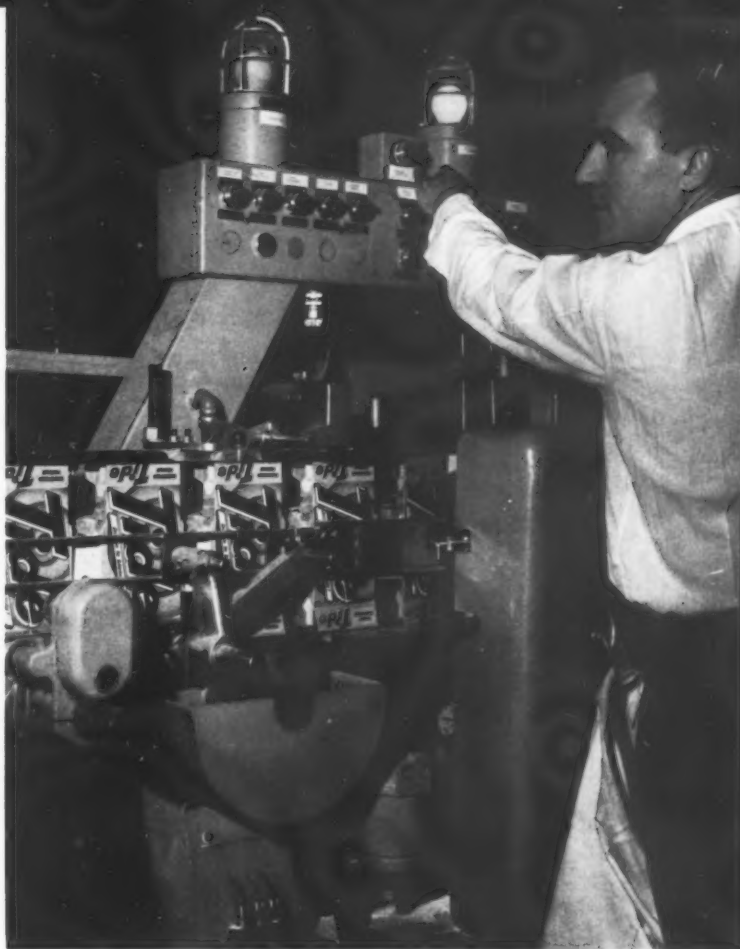
chine maintenance and storage of spare parts; and finally the administration building which houses offices, cafeteria, a research and an analytical laboratory. The plant also features an infirmary equipped for medical examinations and a first aid post.

The whole group of buildings is dominated by two great towers: the drying tower, encased in metal and an integral part of the manufacturing unit, is 25 meters high (approximately 79 feet) and the water tower, 40 meters high (about 130 feet) and having a capacity of 400,000 liters. This water supply is intended as a reserve in case of fire and the reservoir is equipped with a heating device to keep the supply available at all times. The plant incorporates the latest devices of automation and is said to operate with a minimum of the noise commonly associated with industrial processing.

The new plant will depend entirely on Belgian sources for its packaging materials and approximately 85 per cent for its raw materials. The remaining 15 per cent of the basic materials will also, at least in part, be supplied by mem-

bers of the Benelux group. Procter & Gamble is represented on the Belgian market by

five products: "Dreft" was first imported into Belgium in 1948, na-  
(Turn to Page 55)



Automatic unit fills more than four cartons per second in new P&G plant in Malines, Belgium.

View of packaging room where filled detergent boxes are placed in shipping cartons for distribution to customers.



# FRAGRANCE SYMPOSIUM

**New developments in perfuming discussed at Third Annual Symposium on Fragrance of American Society of Perfumers. Award honorary membership to H. Gregory Thomas.**

**T**HE American Society of Perfumers held its Third Annual Symposium on Fragrance on March 20 at the Essex House, New York. One of the highlights of the meeting was the award of an honorary membership in the Society to H. Gregory Thomas, president of Chanel, Inc., New York. Mr. Thomas is a past president of the Fragrance Foundation. The award was presented by Pierre L. Bouillette, Givaudan-Delawanna, Inc., New York, president of the society.

Following the presentation, Mr. Thomas spoke on "Fragrance Types and Merchandising Methods." One of the main points he made was the absence, in the fragrance field, of such "trends" as exist in the fashion world. The great perfume is a work of art, comparable to a classic by a great composer. Its life is not circumscribed by fashion. Like music it is perceived by sentient reactions and there is no adequate vocabulary to describe an individual perfume, let alone advertise it. As in other creative arts there are many distinct schools in perfumery, each with its own distinctive ideas.

Once the perfume creation has left the hands of the composer it has to be named, packaged, and merchandized to come to life. Each perfume house tends to work within certain frames of style associated with its name in the minds of the public. But new packaging materials are welcomed for their quality of lightness, and other physical properties which may widen the range of packaging and display

possibilities. Advertising media must be selected with due consideration of the specific area of coverage, and of the relative number of probable customers for the particular product. General coverage is of little importance for quality perfumes, excepting special merchandising events. By the same token the opening of new outlets presents a difficulty.

While the advertising of an individual product is fraught with difficulties, Mr. Thomas believes in the importance of advertising and popularizing perfume and fragrance on a cooperative basis and appealed to the industry to support the collective public relations activities of the Fragrance Foundation.

## **Classifying Fragrance**

**C**AMILLE H. BOURGUET of American Aromatics, Inc., New York, presented a paper on the "Language and Indexing of Fragrance" in which he suggested a system of classification and olfactory analysis based on floral keynotes. When a flower is smelled, aromatic components do not appear one by one, but as a group. Using the red rose as an example, M. Bourguet pointed to at least five characteristics: a key note, a green grouping, a spicy grouping, a honey sweetness, and a floral grouping. Using the floral key notes as criteria, the major floral fragrances can be arranged in such a way that each bears a marked similarity to its neighbors. Mr. Bourguet showed a clockwise arrangement starting with violet, and going to cassia,

mimosa, reseda, rose, the lilies, honeysuckle, jasmins, orange blossom, wisteria, locust, wallflower, heliotrope, hawthorn, lilac, carnation, ylang, narcissus, tuberose, gardenia, clover, cyclamen, back to violet.

In most instances the key note can be characterized as centered around an aromatic chemical: benzyl acetate for jasmins, heliotropine for heliotrope, isoeugenol for carnation, etc. Non-floral odors can be classified by similar grouping schemes.

## **Trend to Synthetics**

**I**N a paper entitled "What's Ahead in Man-Made Fragrant Materials," H. C. Saunders of Givaudan-Delawanna pointed to the growing trend toward synthetic products in perfumery. The early resistance to synthetics has been replaced by an ever-growing expansion. This change is due to the growth of the industries consuming perfume materials and to the increasing number of products incorporating fragrance. Requirements have reached a scale where they cannot be met by naturally derived perfumes alone.

Two major changes have come about in the perfumer's art: The recognition that good perfume value is not limited to compounds with structures closely related to that of natural products and the realization that the fragrance of natural isolates depends much on the presence of minor components, which may even so far have defied identification.

Mr. Saunders pointed out that in some of today's formulations the synthetic compound actually constitutes the center of the fragrance. While perfumery still remains an art, the research perfumer is gaining in importance. The screening and indexing of fragrances and filing of perfumes in soap and on blotting paper are among his essential tools. A triple card index is maintained by Givaudan according to Mr. Saunders, but a punch card system would be preferable. He referred to the importance of various aging and shelf tests for perfumes in soaps, synthetic detergents, and cosmetics.

### **Instrumental Analysis**

**"WHAT'S** Ahead for Instrumental Analysis in the Perfume Industry," by Ernst T. Theimer, van Ameringen-Haebler, Inc., New York, surveyed the modern tools available for the analysis of perfume materials by physical measurements. Ultraviolet and infrared spectrophotometry each has its own field of usefulness. Gas-liquid partition chromatography promises to be the most useful tool for the separation and analysis of complex mixtures. Nuclear magnetic resonance, mass spectrography and thermal diffusion hold great promise for aromatic chemical analysis.

### **Research in Fragrance**

**PAUL Z. BEDOUKIAN**, New York consultant, surveyed "Research Trends in Perfumery Materials." He traced the history of chemical research underlying today's large-scale production of synthetic odorants. Going back to 1875, when the structure of the terpenes was first elucidated, Dr. Bedoukian mentioned the subsequent milestones such as the synthesis of terpene alcohols, benzenoids, nitromusks and more recently of a number of additional macrocyclic compounds. Commercial manufacture followed laboratory synthesis of many of these compounds. The large scale manu-

facture of synthetic linalool is currently opening up new possibilities of synthesizing aliphatic materials heretofore only available as isolates from essential oils. New analytical methods and tools lead to the discovery of previously unknown trace components of essential oils, making for closer duplication of natural oils by synthetics.

Soap producers and food processors may introduce their vast resources into the field of research in odorous materials, since they have much to gain by identification of still unknown key components of flowers, fruits, and vegetables, he said.

### **Odor Preferences**

**DOMESTIC** air conditioning has greatly increased the demand for odor improvement because it restricts ventilation, according to Amos Turk, New York consulting chemist, who spoke on "Odor Preferences Among Domestic Consumers." Sources of domestic odors include tobacco, food, people, toilets, building materials, furnishings, cosmetics, etc. Odor composition prevalent at the source may be modified by fractional adsorption and resorption at various surfaces, including air-conditioning coils, by bacterial action and other means. Generally such changes make odors less pleasant.

Domestic odor control may be effected by three methods: catalytic oxidation (for cooking odors), activated carbon sorption, and the diffusion of pleasant odors. The first method is practical only at high temperatures. The activated carbon method offers a wide spectrum of activity and automatic action, but the size of the needed equipment and delayed action make it unsuitable for domestic use. Diffusion of fragrance offers the advantages of rapid action, little capital investment and ease of application. Research is currently being carried out on the evaluation of odor preferences. Dr. Turk stressed the need for more accurate means of evaluating odor intensity.

The technical meeting was followed by a cocktail party and buffet supper.

### **Detergents in Sewage**

(From Page 46)

phosphates in formulated detergents, undertook as its first assignment, development of test methods for detecting minute amounts and varieties of phosphates in surface waters and sewage.

At this point, a practical method capable of detecting and differentiating between simple and condensed phosphates at fractional parts per million in distilled water has been proved out and employed with a fair measure of accuracy on surface waters and sewage effluents. Additional refinements or modifications are now being worked on to improve accuracy of the method when applied to surface waters and sewage. It is expected that through the continuing excellent cooperative efforts of the members of this group a simple and workable procedure will be made generally available through publication.

Aside from comprehensive surveys that are being made in the project at the University of Illinois on the levels of phosphate presently existing in surface waters, an interesting set of figures developed through collaborative analyses by members of the phosphate group shows, in samples of widely distributed normal surface waters, total phosphate concentrations ranging from 0.02 to 0.66 ppm with apparent condensed phosphate ranging from 0.00 to 0.49 ppm. Among the samples taken was one from the primary effluent of the Chicago sewage plant which was found to contain 12.1 ppm total phosphate of which 10 ppm was present as fully degraded orthophosphate.

In the work of the phosphate group to date no effort has been made to differentiate between different forms of polyphosphate that may exist in surface waters; indeed, because of low levels that appear to be present, it may not be necessary

to do so, but should the need arise, it is felt that Karl-Kroupa's (15) recently published paper chromatographic method for differential analysis of phosphate mixtures can be adapted.

### Summary

**F**ROM a bird's-eye view of the situation related to detergents in sewage and water treatment, it appears from a brief description of current investigations that alkylbenzene sulfonate in concentrations now present in sewage does not affect bacterial life nor otherwise significantly affect efficiency of operation of a sewage plant. The problem in this area resolves itself primarily to one of frothing and methods are being developed to cope with it.

It is nonetheless apparent that ABS in raw sewage is not completely eliminated by existing conventional sewage treatment and some proportion goes off in its original or partially degraded form through the effluent. There are indications that by control of operations in a sewage plant greater removal of ABS can be achieved in the course of sewage treatment.

At this stage, there is little promise that specialized strains of bacteria capable of completely degrading ABS can be made to subsist in sufficient concentrations in a sewage plant to be effective.

In relation to phosphates, on which attention has been focused as to their possible interference in water treating operations, accumulating evidence points to the fact that the possible offenders (polyphosphates) do not find their way in sufficient concentrations into raw waters to pose a real problem.

It is thus apparent that questions associated primarily with ABS have not yet been adequately answered, nor was it expected that in eighteen months of research would a solution to such a complex problem fraught with so many variables be in hand at this time.

With this realization, the research committee has concluded

that in the interest of the public and the industry, research investigations under sponsorship of the AASGP should be continued and recommendations are currently being made to the board of directors of the Soap Association toward that end.

The original appropriation of close to \$130,000, provided by contributions from interested member and non-member companies, will have been spent in support of the four two-year university contracts that expire in June 1957 and in the recommendations by the research committee to the board an additional sum of \$118,000 is requested, to be expended over the next two years on five research projects; future efforts will be directed primarily to seeking remedial measures. Of the new projects that are proposed, perhaps the most important is one designed to find practical and economical means of removing small traces of ABS that occasionally are found in water supplies.

### Soap Sheets

(From Page 49)

as a carrier. They have one common basic disadvantage: after use they leave a residue which may irritate the skin or clog a drain. In addition, where several layers of soap film are superimposed, the impregnated soap may become brittle with aging, peel off and be wasted.

A more recent suggestion calls for passing continuous sheets of tissue paper through hot soap solution and scraping off the excess soap before drying. But this method gives only a very thin coating and the detergent and foaming power of sheets made by this process is slight.

Products described in Peck's and Muise's patents (4, 6) deposit proportionately larger amounts of soap on each leaf, and therefore, give improved detergency and lather.

The product revealed in the Ehret patent is based on gelatin, mucilage and other binders. It is

completely water soluble but the sheets do not withstand pressure and heat sufficiently to be carried in the pocket. The same applies to sheets made with methyl cellulose. The only soap sheet answering all the requirements outlined above is based on water soluble polymerized vinyl alcohols or esters.

The author used a mixture of polyvinyl alcohol and polyvinyl pyrrolidone which yielded a film completely soluble in hot or cold water, compatible with soap and synthetic detergents. Various additives, including medicinals are readily incorporated. Both vinyl compounds used are non-toxic and non-irritating. Preference was given to a syndet over soap because pH control is important if the final product is intended for medicinal purposes. "Lathanol" (National Aniline Division, Allied Chemical & Dye Corp.) sodium "Lorol" sulfoacetate imparted optimum mildness and color to all detergent bases tried.

Among medicinal additives antibiotics were tested first. Most satisfactory was 0.05 per cent of tyrothricin. This antibiotic is non-sensitizing and stable in weakly acid medium. Five per cent propionic acid incorporated as a fungistatic agent showed good promise in the treatment of athlete's foot. As keratolytic agent, five per cent salicylic acid may be added to the syndet/vinyl compound mixture.

### Acknowledgments

We should like to express our appreciation to Leslie Wizeman of National Aniline Division, Allied Chemical & Dye Corp. for his help in this work and to Wallerstein Laboratories, Inc., for the tyrothricin placed at our disposal.

### Patent Literature

- (1) U. S. Patent No. 273,946, Process for making soap leaves, Heinrich Buczkowski, March 13, 1883.
- (2) U. S. Patent No. 546,614, Process for preparing soap sheets, W. H. Roach and A. J. Tourville, Sept. 3, 1895.
- (3) U. S. Patent No. 1,125,405, Soap sheet and method of manufacturing same, J. M. Sibbit, Jan. 19, 1915.
- (4) U. S. Patent No. 1,631,757, Washing



Paper, C. B. Peck, June 7, 1927.

- (5) U. S. Patent No. 2,093,824, Detergent cloth, Paul A. Woronoff, Sept. 21, 1937.
- (6) U. S. Patent No. 2,389,736, Soap sheet and method of making same, James H. Muise, Nov. 27, 1945.
- (7) U. S. Patent No. 2,251,328, Flexible sheet (gelatin), C. Ehret, May 12, 1938.
- (8) U. S. Patent No. 2,356,168, Soap leaves (methyl cellulose), C. W. Mahley, Aug. 22, 1944.
- (9) U. S. Patent No. 2,226,075, Soap product, Charles S. Rowe, (assignor to E. I. du Pont de Nemours & Co.) Dec. 24, 1940.

### New P&G Plant

(From Page 51)

tionally distributed by 1950 and today its sales exceed those of any other light duty detergent on the Belgian market. "Tide" was first imported from the United States in 1951, later from the United Kingdom. The formulation of "Tide" was changed in 1955 and its retail price was reduced in July 1956. "Daz" made its bow on the Belgian market in 1954 and is today the most popular product in its class. Its price was reduced in 1956. "Spic & Span" was first introduced in the Grand Duchy of Luxembourg in March 1956. It is now available also in the provinces of Brabant and Hainaut and will eventually be sold all over Belgium.

"Camay" toilet soap, imported from the United States until 1955 is now made in Belgium under a licensing arrangement.

The plant incorporates the latest devices of automation and is said to operate with a minimum of the noise commonly associated with industrial processing.

From 1948 up to the opening of this new production unit at Malines, P & G products for the Belgian and Luxembourg markets had been made by Thomas Hedley & Co., P & G's British affiliate, located at Newcastle-on-Tyne. Import and distribution were handled by Etablissements van Creveld, Brussels, exclusive representatives for Procter & Gamble in Belgium. The Malines plant is operated by Procter & Gamble Belge S. A. and headed by Paul R. Parrette, managing di-

rector. Other officers are Carel van Creveld, sales manager; Geoffrey Dodd, plant manager; Byram H.

Faris and Camiel Schoepen, joint treasurers; and Arthur Fenning, director of purchasing.

## Toilet Goods Association to Hold Annual Meeting in New York May 7-9

**"PERSONALITY**—Key to Future Profits" will be the theme of the 22nd annual convention of the Toilet Goods Association to be held Tuesday, Wednesday and Thursday, May 7-9 at the Waldorf-Astoria Hotel, New York. Highlight of the three-day meeting will be three panel discussions of packaging, distribution and promotion, and the manner in which each of these helps to build the personality of a product. Principal speaker will be Otis L. Wiese, editor and publisher of *McCall's*, who will discuss "The Changing Personality of Our Times."

According to J. I. Poses of D'Orsay Sales Corp., New York, program chairman, an unusual feature of the panel discussions will be a "jury box" of representatives of the toilet goods industry for each panel, who will question the speakers on each subject.

The meeting will open on the morning of the May 7 with the annual address by the president, Pierre Harang, vice-president of Houbigant Sales Corp., New York. A report by executive vice-president S. L. Mayham and the election of officers and directors are also scheduled for that period.

Tuesday afternoon, May 7, Miss Florence Goldin of Grey Advertising will speak on "What Women Want in a Toiletries Personality." There will also be a panel "Personality and Your Package" with Kay Brown, Yardley of London, Inc., "Packages and Women;" Donald Deskey, package designer, "Product Personality in Your Package Design"; and Lloyd Stouffer, *Modern Packaging*, "New Packaging Trends."

"The Changing Personality of Toiletries Distribution" will be the theme of the panel on Wednesday morning, May 8. Jean Despres

of Coty, Inc., New York, will serve as chairman.

In the afternoon, "Building a Product Personality Through Promotion" will be discussed. Panel members include Donald Frost of Bristol Myers Co. and Norman Peck of Peck Advertising, who will talk on "Personality in Advertising," and Janet Myers of Bourjois, Inc., New York, who will discuss "A Personality For Tomorrow." Donald Bryant of Warner-Lambert Pharmaceutical Co., Morris Plains, N. J., will conduct the panel.

The Scientific Section of the association will meet on May 9 under the direction of Orville Davenport, Avon Products, Inc., New York, who is chairman of the section. The morning program includes "Interference of Non-Ionic Emulsifiers with Preservatives in Chromatographic and Chemical Investigation," by Constance Hall and Maison G. de Navarre, Cosmetic Laboratories, Inc., Division of Beauty Counselors, Inc., New York; "The Measurement of Consumer Reaction to Fragrances," by Noel Schwartz and Dean Foster, U. S. Testing Laboratory; "The Antibacterial Activity of the Aluminum Salts," by Dr. Irvin H. Blank and Ruth K. Dawes, department of dermatology, Massachusetts General Hospital, Harvard Medical School, and Majorie Moreland of Summit Diagnostic Laboratories, Summit, N. J.; "Ethanolamines in Topical Preparations," by John H. Draize, Francis X. Wazeter and Elsie A. Kelley, division of pharmacology, Food and Drug Administration, Bureau of Biological and Physical Sciences, Washington, D.C.

The afternoon papers will include "Pitfalls in Evaluating the Safety of Cosmetics," by Dr. Bernard E. Conley, secretary, committee on toxicology, American Medical

Association; "The Analytical Chemistry of Silicones in Cosmetics," by A. Pozefsky and M. E. Grenoble, General Electric Co.; and "Practical Measurements of Epidermal Emolliency and Emollient Penetration," by Dr. Herbert J. Spoor.

The annual CIBS Award will be presented by CIBS president, George Kaempkes, Pacquin, Inc., New York, to authors of the best papers published in the proceedings of the scientific section during 1956.

The seventh annual Toilet Goods Industry golf tournament will be held at the Winged Foot Golf Club, Mamaroneck, N. Y., on Monday, May 6, the day before the 22nd TGA convention in New York City, it was announced recently. Tickets are priced at \$18.00 for the tournament and dinner and \$10.00 for the dinner only. Reservations may be obtained from the Toilet Goods Industry Golf Tournament Committee, Room 2006, 1270 Avenue of the Americas, New York 20, N. Y.

### Letters

(From Page 39)

*Groarty and assured him that no encroachment of his trade mark was intended. The word appears as part of a cut, which was reproduced from the original drawing. Generally SOAP publishes trade marks in quotation, to distinguish them from generic names, and where possible includes the name of the trade mark owner. Ed.*

—★—

### Glenn Chemical Elects

Glenn Chemical Co., 2735 North Ashland Ave., Chicago, recently announced election of its officers. Joe Abrams was named president, while Z. Z. Dworkin was appointed vice-president. John Zuro was named secretary-treasurer. The company, which was formed recently, manufactures "Tabutrex," a chemical insect repellent. The product is said to be a colorless, odorless liquid which can be used in oil, water or wax.

## CR Rates Oven Cleaners; Pastes Best

**S**OLVENT type oven cleaners in paste form are rated superior to aerosol dispensed products in a survey published in the March issue of *Consumers' Research Bulletin*, Washington, N. J. Paste cleaners must be spread with a sponge or brush over the porcelain enamel surface, allowed to stand for a time, and are removed with a wet cloth or sponge. Rubbing with metallic type sponge or other abrasives should not be required, according to CR standards. Paste oven cleaners generally contain sodium hydroxide or another caustic.

The newer aerosol spray-on products, though easier to apply than the pastes, are more expensive, and according to CR, inferior grease removers. In addition the use of metallic sponges is needed.

Nine pastes and four sprays were tested. Seven of the pastes received "A" ratings and are recommended. Most have an "unpleasant" odor, according to CR and waiting time prescribed for cleaner action varies from 30 minutes to three hours.

Pastes listed in the CR study include the following products: "de-Grease-it," made by Meirett, Inc., Danbury, Conn., was rated as a "good" grease remover. A thick paste, "somewhat difficult to spread," the product has a waiting time of 30 minutes before removal. A 16-ounce jar retails for 98 cents.

"Easy-Off," by Boyle-Midway, Inc., Cranford, N. J., in a 16-ounce jar for 98 cents, was rated as a "good" grease remover, by CR. It is a paste of "good" consistency and spreads "easily," CR says. An interval of two to three hours between application and removal is suggested by the maker.

"E-Z-Est," made by E-Z-Est Products Co., Oakland, Calif., was rated a "good" grease remover, by CR. The product is a thick paste and 30 minutes should be allowed for cleaning action. It is packaged in a nine ounce jar retailing for 69 cents.

"Its" Oven Cleaner, a product of Earl Grissmer Co., Indianapolis, described by CR as a paste of "good" consistency and "good" grease removal, should remain on the surface to be cleaned for two or three hours. A 16 ounce jar of "Its" retails for \$1.00.

"Korex" Oven Cleaner, Korex Co., Ferndale, Mich., in a 17-ounce jar priced at 98 cents, was rated by CR as a "good" grease remover. A paste of "good" consistency, it requires a waiting time of one to two hours between application and removal.

"Lewal's" Oven Cleaner, Lewal Industries, Inc., New York, is packaged in a 16-ounce jar priced at 98 cents. CR rates it as a "good" grease remover, but comments that it is a "thin paste with a tendency to run." Recommended waiting time: two hours.

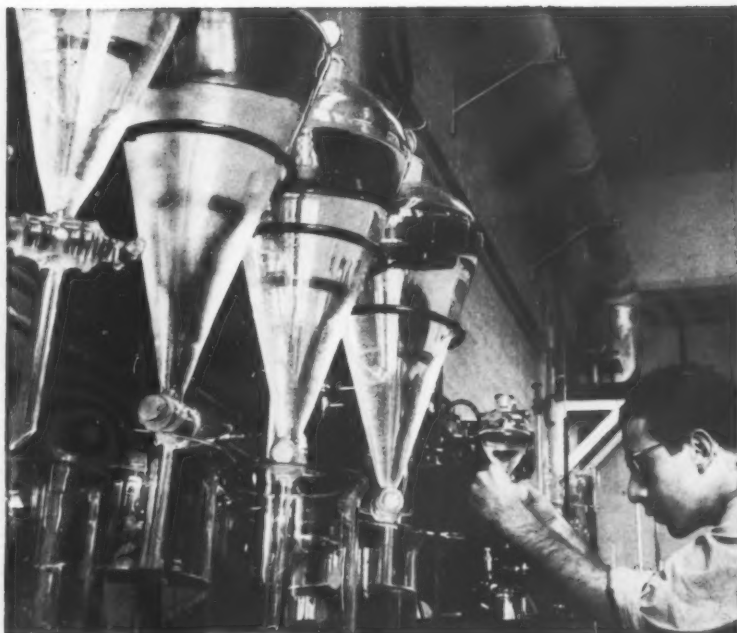
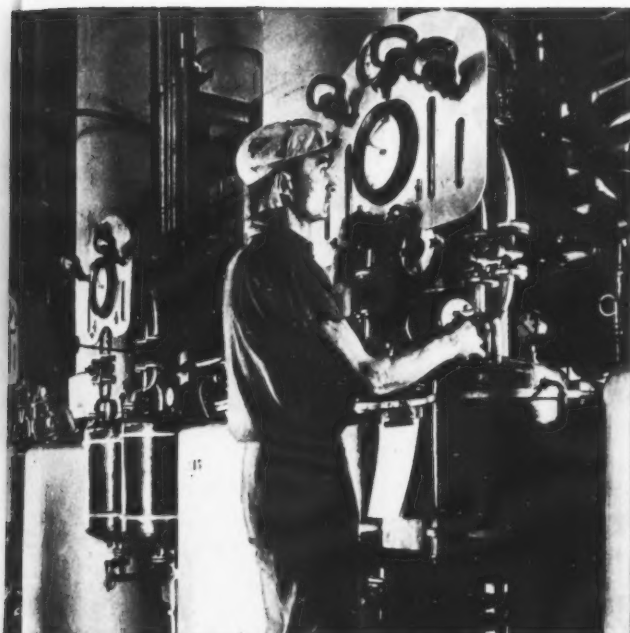
"Quick'n Brite," My-Ko Chemical Corp., Milwaukee (16-ounce jar for 98 cents), is said by CR to be a "good" grease remover and of "good" consistency. The product which has no odor, requires one to two hours to act.

Rated by CR as a "fair" grease remover is "Easy-Aid" (16-ounce jar, 98 cents), made by G. N. Coughlan Co., West Orange, N. J. Suggested application time of 10 to 30 minutes for this product was found insufficient by CR.

One paste was classed as not "recommended" by CR: "Gumption," made in England, distributed by Irval Associates, New York, in 12-ounce cans is 98c.

Four aerosol products "not recommended" by CR included: "Hep-Safe-T-Spray" by Bostwick Laboratories, Inc., Bridgeport, Conn., 12-ounce can, \$1.49; "Krust-Off" by Bandwagon Manufacturing, Inc., Boston, 12-ounce can, 90 cents; "Sea-Spray" by O-Cedar Division of American-Marietta Co., Chicago, 12-ounce can for \$1.49; "Spee-Dee" by DeMert & Dougherty, Inc., Chicago, six-ounce can, 89 cents.

## Givaudan aromatics—keystones of progress in soap perfumery



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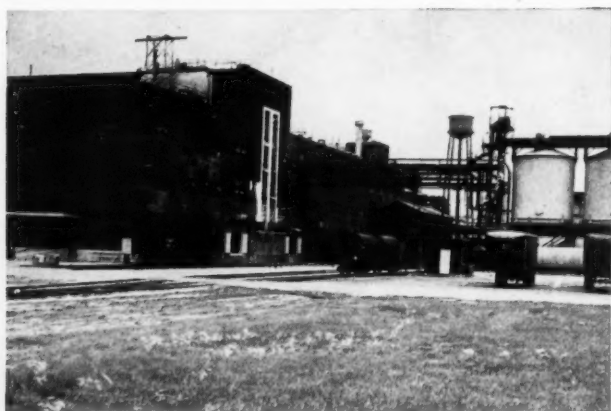
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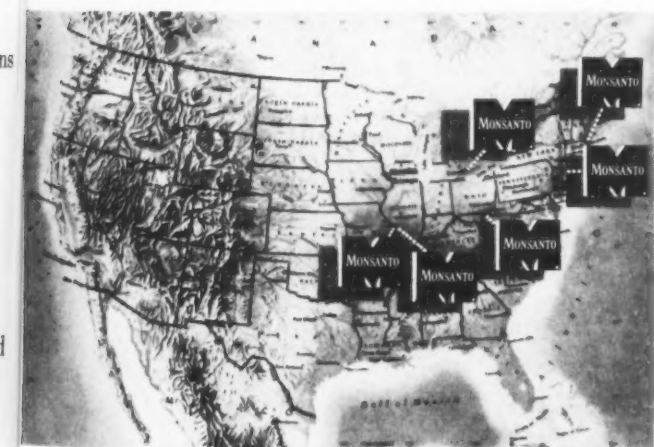


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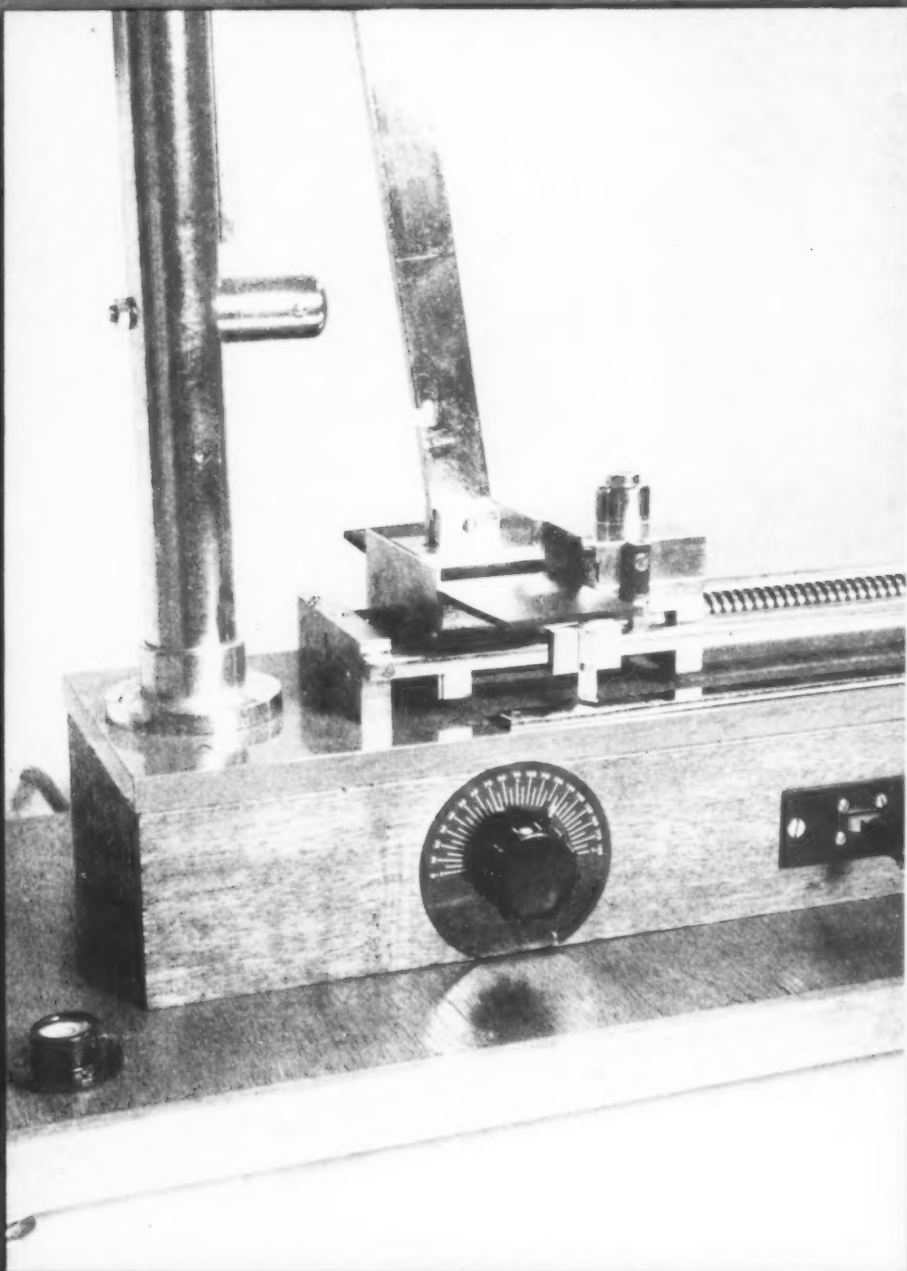
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## *Announcing . . .*



**ANNOUNCING** the 43rd annual mid-year meeting of the Chemical Specialties Manufacturers Association at the Drake Hotel, Chicago, May 21-22, 1957.

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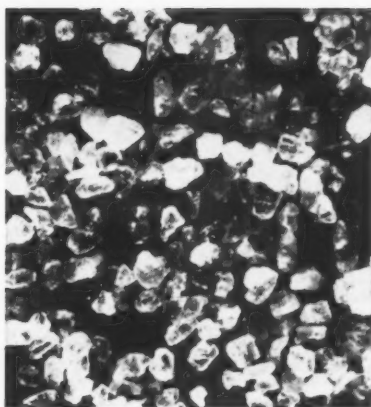
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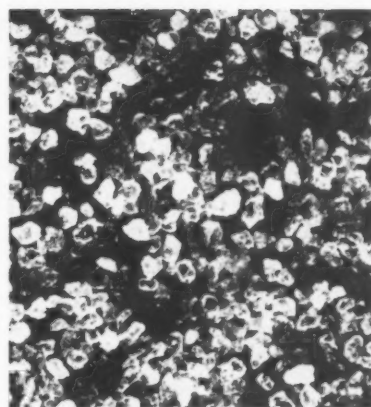
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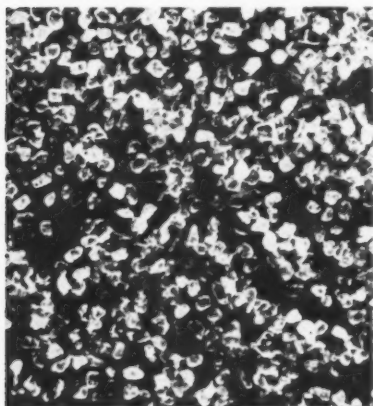
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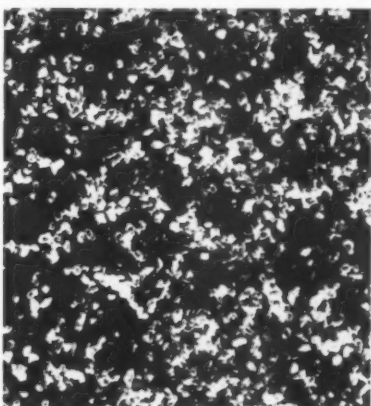
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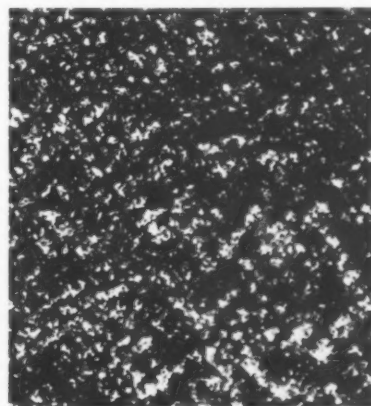
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Petrolite C-1035 . . . . .	195 Min.	2 Max.	1 1/2 Max.	Nil	Nil
Petronauba C . . . . .	180 Min.	7 Max.	3 Max.	22-28	50-60
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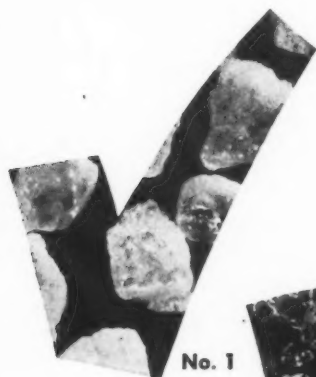
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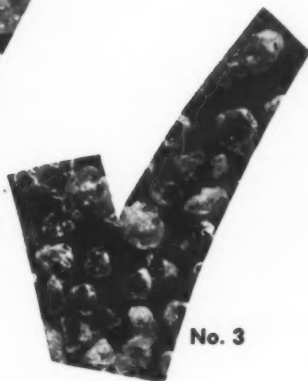
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# Floor Wax Slip Testing

## Statistical analysis of Dura vs. James coefficient of friction measurements

By Bernard Berkeley and James D. Burns\*

Foster D. Snell, Inc., New York

**T**HE Dura Slip Resistance Tester (1) recently became available in this country for the evaluation of static coefficient of friction of treated and untreated surfaces. The tester operates on the same principle as the James Machine, or Underwriter's type slip tester, while offering the advantages of portability and automatic operation.

In view of the flexibility of the Dura Tester, and its potential acceptance by trade associations and government agencies, a detailed evaluation of the machine was programmed to correlate its operation to that of the widely used James Machine.

### Operation of Dura Tester

A thousand gram weight sliding on a vertical column is the maximum downward thrust. Hinged to it is a metal bar which in turn is hinged to a small, toothed plate. This plate can be fixed to a piece of leather or sole material which rests on the surface being tested. The test surface is held on a sleigh which is driven horizontally away from the column holding the weight. When a point is reached where the sole material slips forward on the test surface, a lever disconnects the sliding indicator. Once disengaged, the indicator stops at the point where the slipping action occurred. The slip angle, the cotangent of which is the coefficient of friction, can then be read from a scale graduated in 0.5

degrees and estimated to the nearest 0.1 degree.

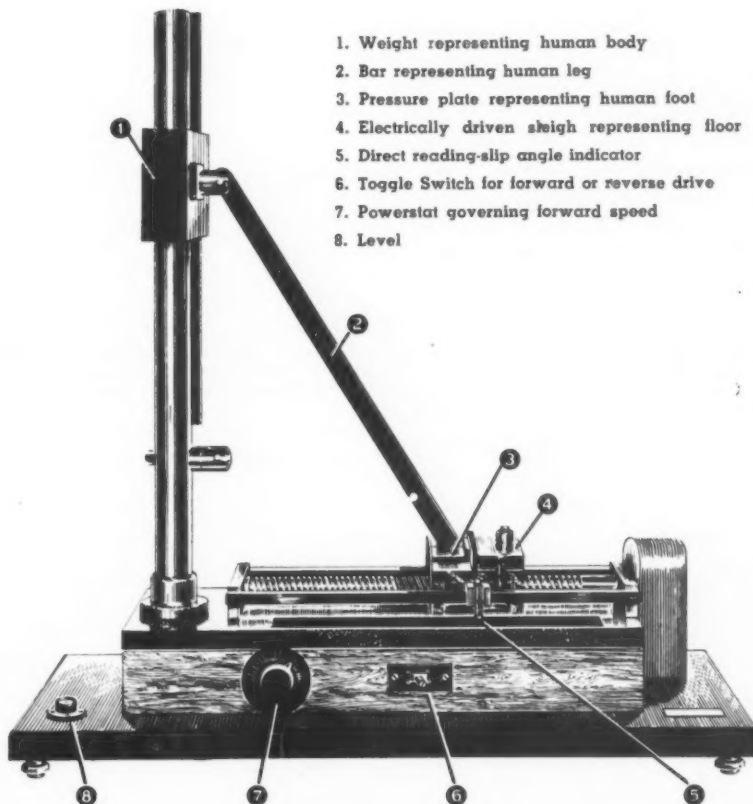
### Operating Conditions

A. *Test Heel:* A suitable leather test heel was prepared from Armour's 3/16" thick Prime Sylva grade sole leather. (2) The heel was cut 1 1/2" x 1 3/16" with a sharp knife and sanded on a glass plate faced with No. 400A Tri-M-ite carborundum paper. (3) The adhering dust was removed from the face of the heel by wiping with a clean soft cloth.

Care should be taken to avoid touching the prepared face of the heel or allowing the cleaned surface to become contaminated before use.

The test heel used with the James Machine was prepared from the original piece of leather that was employed with the Dura Slip Resistance Tester.

It is good operating procedure to test new heels by comparison of slip angle measurements with values previously obtained for a standard surface.



\*Paper presented Dec. 5, 1956 before the 43rd annual meeting, Chemical Specialties Manufacturers Association, Washington, D. C.

**Table 1. Slip Measurements of Unwaxed Tiles Using the Dura Slip Resistance Tester at Various Operating Speeds (77°F. and 50% Relative Humidity)**

Powerstat Setting	Tentative Official Test Linoleum			
	50	100	150	180
	52.3°	50.3°	58.5°	55.2°
	52.0	54.8	58.7	53.7
	55.2	53.7	58.3	55.5
	56.5	52.2	56.5	52.7
	53.8	53.3	56.5	55.5
	52.3	52.3	54.3	55.4
	52.5	56.5	54.5	55.2
	55.2	54.0	57.7	53.9
	50.7	57.0	53.5	52.5
	51.8	57.8	56.2	56.0
Total	532.3°	541.9°	564.7°	545.6°
Average:				
Dura Degrees	53.23°	54.19°	56.47°	54.56°
Coefficient of Friction	0.747	0.722	0.663	0.712
Standard Deviation	±1.856°	±2.366°	±1.869°	±1.258°
Range (Dura Degrees)	5.8°	7.5°	5.2°	3.5°

**B. Operating Procedure:** To operate the machine, bring the sleigh back to the starting position by turning the toggle switch toward reverse. Insert the test surface in the slot provided on the sleigh. Place the leather heel face down on the test surface and fix the toothed plate attached to the leg on the test heel so that it fits flush against the backing plate of the sleigh. Mark the position of the heel on the backing plate and return the heel to this position for subsequent tests. Set the trigger so that the indicator starts at 85° and adjust the dial setting of the powerstat to the desired speed determined as indicated below. Switch on to forward drive and permit the sleigh to travel the length of the track. The heel will slip and release the trigger at the point where the horizontal

component of applied force exceeds the frictional resistance between the test heel and the surface being tested. Read the slip angle to the nearest one-tenth degree.

#### Operating Speed

The Dura Slip Tester can be operated at different powerstat settings to control the forward speed of the heel assembly.

The relationship between powerstat dial settings and forward speed of the unweighted sleigh was found to be as follows:

Powerstat Dial Settings	Time Required for Unweighted Sleigh to Move from 85° to 45° in Seconds
50	32.4 ± 2.78
100	20.8 ± 1.01
150	15.1 ± 0.65
180	13.7 ± 0.56

**Table 3. Slip Measurements of Unwaxed Tiles Using the Dura Slip Resistance Tester at Various Operating Speeds (77°F. and 50% Relative Humidity)**

Powerstat Setting	Gold Seal Vinyl Tile			
	50	100	150	180
	58.7°	56.2°	55.7°	56.8°
	52.2	54.5	53.7	54.4
	57.1	54.1	57.7	56.5
	57.1	54.0	53.1	54.2
	57.7	53.0	55.5	57.6
	57.7	54.8	54.2	56.8
	56.0	52.2	56.0	53.1
	55.4	55.5	55.8	54.1
	58.4	53.3	57.8	55.8
	53.4	56.0	54.7	57.0
Total	563.7°	543.6°	554.2°	556.3°
Average:				
Dura Degrees	56.37°	54.36°	55.42°	55.63°
Coefficient of Friction	0.654	0.717	0.689	0.685
Standard Deviation	±2.146°	±1.309°	±1.556°	±1.548°
Range (Dura Degrees)	6.5°	4.0°	4.7°	4.5°

**Table 2. Slip Measurements of Unwaxed Tiles Using the Dura Slip Resistance Tester at Various Operating Speeds (77°F. and 50% Relative Humidity)**

Powerstat Setting	Tentative Official Test Asphalt Tile			
	50	100	150	180
	53.3°	57.5°	58.7°	55.7°
	52.8	53.5	55.4	56.0
	54.0	53.7	56.7	53.6
	52.5	54.8	54.0	57.5
	53.3	52.3	53.4	52.4
	52.3	56.5	54.6	54.4
	53.7	56.3	55.8	55.9
	54.4	55.5	55.5	54.5
	56.2	52.2	53.4	54.2
	55.4	54.3	53.8	53.2
Total	537.9°	546.6°	551.3°	547.4°
Average:				
Dura Degrees	53.79°	54.66°	55.13°	54.74°
Coefficient of Friction	0.732	0.709	0.697	0.708
Standard Deviation	±1.255°	±1.792°	±1.673°	±1.531°
Range (Dura Degrees)	3.9°	5.3°	5.3°	5.1°

As a consequence of the initial trials with the unweighted sleigh, it was considered desirable to operate the Dura Slip Resistance Tester three to four times prior to carrying out actual slip measurements.

In view of the choice of speeds that is offered the experimenter, consideration was given to the selection of dial settings insofar as effect on accuracy and reproducibility of results is concerned. In order to reach a decision on both questions, a series of slip determinations were conducted on unwaxed flooring surfaces at dial settings of 50, 100, 150, and 180. New tiles (6" x 6") were selected at random, prepared in accordance with a proposed A.S.T.M. procedure (4) for testing coefficient of friction and then cut into strips

**Table 4. Slip Measurements of Unwaxed Tiles Using the Dura Slip Resistance Tester at Various Operating Speeds (77°F. and 50% Relative Humidity)**

Powerstat Setting	Robbins Rubber Tile			
	50	100	150	180
	49.0°	48.9°	50.8°	49.5°
	50.0	50.4	49.8	49.0
	50.7	46.5	49.5	50.3
	51.0	49.5	54.8	48.5
	48.1	49.7	48.0	49.1
	48.9	46.8	55.0	47.1
	49.0	50.0	48.4	50.3
	48.3	46.8	48.3	48.7
	51.5	51.3	46.8	48.3
	49.9	48.7	50.4	47.7
Total	496.4°	488.6°	501.8°	488.5°
Average:				
Dura Degrees	49.64°	48.86°	50.18°	48.85°
Coefficient of Friction	0.850	0.873	0.837	0.874
Standard Deviation	±1.163°	±1.661°	±2.759°	±1.030°
Range (Dura Degrees)	3.4°	4.8°	8.2°	3.2°

**Table 5. Slip Measurements of Unwaxed Tiles Using the James Machine (77°F. and 50% Relative Humidity)**

	TOTL	TOTAT	Rubber	Vinyl
	0.81	0.70	0.99	0.78
	0.81	0.73	0.89	0.62
	0.79	0.75	0.88	0.62
	0.79	0.80	0.88	0.69
	0.79	0.72	0.89	0.69
	0.78	0.73	0.92	0.70
	0.76	0.75	0.91	0.71
	0.74	0.75	0.91	0.60
	0.78	0.76	0.92	0.67
	0.74	0.76	0.95	0.65
Total .....	7.79	7.45	9.14	6.73
Average:				
Coefficient of Friction	0.779	0.745	0.914	0.673
Standard Deviation ..	±0.0251	±0.0272	±0.0344	±0.0534
Range .....	0.07	0.10	0.11	0.18

1 5/8" x 6". The size of each strip allowed us conveniently to obtain four results, one at each dial setting on the same strip. The usual precautions were taken to randomize

PT 36(8) are given in Tables 1 through 4. Comparable results with the James Machine on the same surfaces are summarized in Table 5.

Included with each table are

**Table 6. Analysis of Variance Applied to Data Obtained with Dura Machine on Unwaxed Surfaces at Different Powerstat Settings**

Tentative Official Test Linoleum (TOTL)				
Source of Variation	Sum of Squares		Degrees of Freedom	
	Variance or Mean Square		F ratio	
Between speeds .....	55.43	3	18.48	5.24
Within speeds .....	127.06	36	3.53	—
Totals .....	182.49	39		
Tentative Official Test Asphalt Tile (TOTAT)				
Between speeds .....	9.59	3	3.20	1.29
Within speeds .....	89.32	36	2.48	—
Totals .....	98.91	39		
Robbins Rubber Tile				
Between speeds .....	32.60	3	10.83	4.10
Within speeds .....	95.02	36	2.64	—
Totals .....	127.62	39		
Gold Seal Vinyl Tile				
Between speeds .....	20.60	3	6.87	2.46
Within speeds .....	100.30	36	2.79	—
Totals .....	120.90	39		

Snedecor's F ratio for 3/36 degrees of freedom at the 5% level is 2.86, and at the 1% level 4.38.

the order of testing for each set of four determinations, and to sand and dust the heel before each use.

## Experimental Work

The basic slip data obtained with the Dura Machine on unwaxed Tentative Official Test Linoleum 1956 (TOTL), (5) Tentative Official Test Asphalt Tile 1956 (TOTAT), (6) Robbins Rubber Tile Style No. 100A 1/8" thick (7) and Gold Seal Vinyl Tile Pattern

all the calculated values used to determine the standard deviations, sum of squares and variance.

The standard deviation was

computed from the equation:

$$S = \sqrt{\frac{1}{n-1} \left( (\sum x^2) - \frac{(\sum x)^2}{n} \right)}$$

in which S = The standard deviation; n = Number of determinations;  $\sum x^2$  = The sum of the squares of each measurement;  $(\sum x)^2$  = The square of the total of all measurements.

An examination of the tables shows the inevitable differences in determinations, which are a bane to the experimenter and a boon to the statistician. The first question that presented itself was: "Are the differences between the average values real, in view of the deviations that occurred at each dial setting?" In order to answer the question, the data in each table were subjected to a simplified analysis of variance, (9) the results of which are summarized in Table 6.

The statistical analysis indicates, without conclusively proving, that the operating speeds influence the average results. A clearer interpretation of the differences that were found to exist can be obtained by converting the averages given in terms of Dura degrees to coefficient of friction, as was done in Table 7.

While it can be contended that the magnitudes of the differences among the averages are not great, in view of the accepted practice of reporting coefficients of friction as two significant numbers, nevertheless, common sense dictates the adoption of the operating speed that yields the most accurate and most reproducible average value.

To help us reach a decision on the selection of the best operating speed, the total differences be-

**Table 7. Summary of Slip Results on Unwaxed Surfaces**

	Coefficient of Friction = Cotangent (Dura Degree)				
	Dura Machine at Different Dial Settings				James Machine
	50	100	150	180	
TOTL .....	0.747	0.722	0.663	0.712	0.779
TOTAT .....	0.732	0.709	0.697	0.708	0.745
Vinyl .....	0.654	0.717	0.689	0.685	0.673
Rubber .....	0.850	0.873	0.837	0.874	0.914
Sum .....	2.983	3.021	2.886	2.979	3.111

**Table 8. Differences in Results Between Dura and James Machines.**

	50	100	150	180
TOTL .....	0.032	0.057	0.116	0.067
TOTAT .....	0.013	0.036	0.048	0.037
Vinyl .....	0.019	0.044	0.016	0.015
Rubber .....	0.064	0.041	0.077	0.040
Sum .....	0.128	0.178	0.257	0.159

**Table 9. Variances of All Determinations on Unwaxed Surfaces**

	Pooled Sums of Squares	Degrees of Freedom	Variance or Mean Square	F
<b>Powerstat Setting</b>				
50 .....	11.0048	36	0.3057	1.49
100 .....	13.2776	36	0.3688	1.80
150 .....	16.3213	36	0.4533	2.21
180 .....	7.3835	36	0.2051	...

Snedecor's F ratio for 36/36 degrees of freedom at the 5% level is 1.74 and at the 1% level is 2.22.

tween results with the Dura Machine and the James Machine were calculated, in Table 8, without regard to sign.

The accumulated differences illustrated in Table 8 suggest the order of decreasing accuracy as 50, 180, 100 and 150. This random order appears to rule out any definite trend in biased results attributable to changes in operating speed.

As a final step in the selection of the "best" operating speed, consideration was given to the reliability or precision of the averages at each speed. Toward this end, the deviations within the various sets of 10 determinations were analyzed by pooling the sums of

squares for each speed and calculating the combined variances at 36 degrees of freedom. The analysis, summarized in Table 9, shows an advantage in favor of Powerstat setting 180. Reduced to practical terms, the analysis supports the belief that determinations conducted at 180 will show closer agreement with each other than values determined at other dial settings. Based on this factor, and the relatively good correlation, at dial setting 180, with James Machine results, it was decided to adopt this setting for standard operating conditions.

#### Tests on Waxed Surfaces

The flooring surfaces described in previous paragraphs were

coated with two applications of floor polish and evaluated for slip resistance, using the Dura Slip Resistance Tester and the James Machine. The polishes selected for the comparative evaluation of the machines represented a typical household-type floor polish (Wax A) and a typical maintenance-type floor wax (Wax B).

The test surfaces were coated by flooding with wax, after which they were allowed to dry for two hours in an approximately vertical position at 77°F. and 50% relative humidity. A second coat was applied to each surface and allowed to dry overnight in the reverse direction.

Ten slip angle measurements were made on each treated surface using the Dura Slip Resistance Tester at the 180 dial setting and the James Machine in the usual manner. The results of these tests are reported in Tables 10 through 13.

For convenience in comparing the results between the two slip testers, the averages are summarized in Table 14.

An examination of the comparison of averages, Table 14, between the two slip testers indicates relatively good agreement. It can be demonstrated statistically that a difference between paired averages of 0.050 units will occur only

(Turn to Page 109)

**Table 10. Slip Measurements of Waxed Surfaces with Dura Machine Set at Powerstat 180 (77°F. and 50% Relative Humidity) (Wax A)**

	TOTL	TOTAT	Rubber	Vinyl
54.9°	58.0°	57.2°	62.5°	
58.2	58.7	57.7	63.4	
58.9	57.8	58.8	62.9	
57.2	61.7	55.7	65.0	
57.2	57.8	54.6	60.4	
53.8	58.6	56.2	62.3	
57.2	58.0	56.3	63.4	
55.6	58.0	55.8	62.6	
56.4	60.8	56.4	67.1	
59.2	57.6	55.6	62.4	
Total .....	568.6°	587.0°	564.3°	632.0°
Average:				
Dura Degrees .....	56.86°	58.70°	56.43°	63.20°
Coefficient of Friction	0.653	0.608	0.664	0.505
Standard Deviation ..	±1.725°	±1.403°	±1.195°	±1.818°
Range .....	5.4°	4.1°	4.2°	6.7°

**Table 11. Slip Measurements of Waxed Surfaces with Dura Machine at Powerstat Setting 180 (77°F. and 50% Relative Humidity) (Wax B)**

	TOTL	TOTAT	Rubber	Vinyl
54.6°	57.8°	53.1°	57.6°	
52.8	57.0	55.4	58.2	
53.9	56.2	55.5	58.4	
56.4	60.4	52.6	59.6	
55.3	53.9	54.7	61.4	
52.9	57.2	53.6	60.3	
55.6	57.8	54.7	57.2	
56.2	58.0	51.2	58.4	
55.3	56.2	52.9	55.6	
54.7	57.6	55.5	57.4	
Total .....	547.7°	572.1°	539.2°	584.10°
Average:				
Dura Degrees .....	54.77°	57.21°	53.92°	58.41°
Coefficient of Friction	0.706	0.644	0.729	0.615
Standard Deviation ..	±1.245°	±1.656°	±1.473°	±1.667°
Range .....	3.6°	6.5°	4.3°	5.8°



## Effect of

# Water in Automotive Brake Systems

**M**OST every automobile on the road today has water contamination in the brake system. Driving conditions and length of time brake fluid has been in the system will vary the degree of contamination. The more water in a system, the more vulnerable it is to a vapor lock. How does water get into a brake system and what happens when a vapor lock occurs?

Figure VII is a simplified illustration of a master cylinder and one of the wheel cylinders. Brake action depends on brake fluid transmitting hydraulic pressure. During operation of an automobile, the temperature of the brake fluid is substantially raised. This is caused by frictional heat developed from stopping and the position of the master cylinder on the fire wall in the engine compartment. When heated, the brake fluid expands and displaces air from the reservoir through the small vent hole in the master cylinder cap. When the brake fluid cools, it contracts and fresh air is drawn into the reservoir. This exchange of air, from heating and cooling of the fluid and operation of brakes, brings in moisture which is absorbed and diffused throughout the entire brake fluid system.

There have been many tests of brake fluids taken from various automobiles under different conditions. Table I was presented at the 1956 Spring S.A.E. Meeting and serves as an example of water contamination found in brake systems. It has been shown repeatedly, as it is here, that the entire brake system becomes contaminated with water. The authors of this paper

**Chiefly affected by water contamination of brake fluid is boiling point. Metal corrosion and low temperature viscosity, also affected, remain within safe limits.**

**By G. F. Sharrard\***

Director of Research and Development

**and D. H. Hanson**

Research Chemist  
R. M. Hollingshead Corp.  
Camden, N. J.

stated, "It will be noted that one to two per cent water contamination is rather common."

When a moving car is stopped, much of its kinetic energy is transformed into heat energy to be partially absorbed by brake fluid. As number and frequency of stops increases, temperature of the brake fluid increases. Many other factors contribute to raising the tempera-

ture of the brake fluid, such as greater speeds, automatic transmissions and smaller wheel diameters.

If the brake fluid becomes hot enough to boil, vapor bubbles are formed in the cylinders. Vapor as opposed to liquid is very compressible and braking action is lost since applied pressure simply compresses the vapor and does not energize the brakes. At this point the

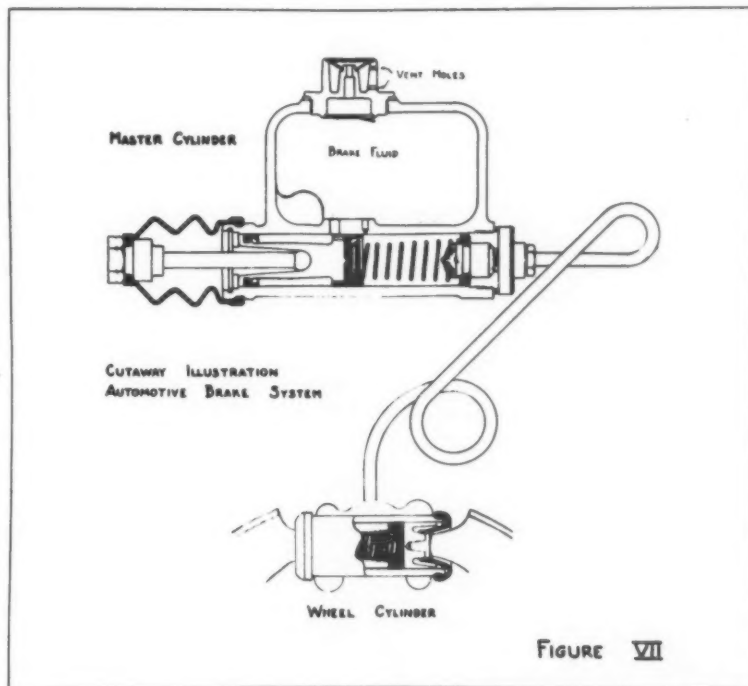


FIGURE VII

\* Paper presented during 43rd annual meeting, Chemical Specialties Manufacturers Assn., Washington, D. C., Dec. 4, 1956.

TABLE I

## WATER IN BRAKE FLUIDS

Company Reporting	Miles of Service	Period of Service	Type of Fluid	Percent Water		
				System	Master Cylinders	Wheel Cylinders
A	--	1 Year	70R2	.56	--	--
A	--	1 Year	70R2	1.45	--	--
A	--	1 Year	70R1	1.39	--	--
A	--	1 Year	70R1	2.06	--	--
A	--	1 Year	70R1	2.23	--	--
B	15,291	--	70R1	--	1.2	--
B	16,702	--	70R1	--	--	.5
B	16,427	--	70R1	--	--	.8
B	8,860	--	70R1	--	2.0	1.25
B	16,652	--	70R1	--	.75*	--
C	7,582	--	70R1	--	.94	.62

\*With Power Brakes

\*Trends in Brake Fluid Temperatures," Tiffany, Rodger and Markey, 3/6/56

TABLE II

## REFLUX BOILING POINTS

## HEAVY DUTY BRAKE FLUIDS\*

Brake Fluid	Volume % Water Added					
	0.0%	0.5%	1.0%	2.0%	3.0%	5.0%
A	330	316	296	274	260	244
B	328	310	300	278	266	250
C	325	310	296	283	269	252
RMH	343	330	318	303	289	272
D	395	367	342	310	286	264
E	391	356	335	306	284	266
F	385	358	340	301	285	262

INITIAL

CRITICAL RANGE

\*All commercially available and all meet S.A.E. 70R1 specifications

best remedy to correct the vapor lock is to allow the fluid to cool so the vapor will condense.

Data showing the severity of the effect of water contamination on heavy duty brake fluid boiling points will be presented.

### Test Method

AT the outset of this study it appeared quite impractical to obtain samples of brake fluids containing varying amounts of water from vehicles operating in the field. Therefore, it was decided to create artificially in the laboratory a situation as closely akin to actual service as possible. Unopened containers of seven commercially available heavy duty brake fluids from six manufacturers were purchased. The fluid in the container, as purchased, was assumed to contain zero water.

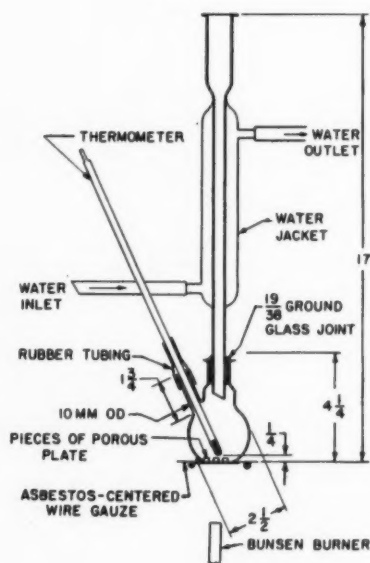
All S.A.E. tests, except residue and stroking, were conducted on two of the brake fluids immediately after adding 1.75 per cent water by volume. They showed the properties most seriously affected were boiling point and low temperature viscosity. Corrosion weight loss on the metals was slightly increased. The property that appeared to be critical was boiling point. It was, therefore, decided to concen-

trate this study on boiling points.

Additions of water were made to the brake fluids in small increments of one-half, one, two, three and five per cent, by volume. This made six samples of each fluid, counting the material as received.

The boiling points of these samples were then determined by the method described in S.A.E. Specification 70R1. It should be pointed out that the boiling point of brake fluid as specified by the

Figure VIII



S.A.E. is not the ordinary A.S.T.M. first dropover distillation boiling point; instead, special test equipment and procedures are used to determine the S.A.E. brake fluid boiling points. This apparatus is shown in Figure VIII.

The apparatus consists of a 100 c.c. flask with side entering tube, a water-jacketed condenser, and an accurately calibrated thermometer, all suitably mounted. Heat is supplied either by a Bunsen burner or an electric heater. The rate of heating and subsequent refluxing is controlled. The rate of reflux ultimately is adjusted to one drop of reflux per second and the temperature taken at this point. This boiling point is commonly referred to as reflux boiling point.

The reason for the S.A.E. boiling point method is that a fluid might have a small percent of volatile material present which might give a low A.S.T.M. initial boiling point. The fluid would probably not vapor lock in brakes at that temperature. The boiling points obtained by the S.A.E. method were, at the time the specification was established, determined to approximate closely the temperatures at which the fluids would boil in

the brake system of a car with no static check valve pressure, and form sufficient vapor to cause brake failure. It has been reported at a previous C.S.M.A. meeting that, with a normal residual line pressure of 8-15 p.s.i. throughout the system, the boiling point of the fluid is raised about 15° to 35°F.

### Data Section

It was assumed that a curve could be drawn through the six points determined for a fluid and extrapolated to 212°F. as the water concentration approached 100 per cent. To test this assumption, one brake fluid was tested with 25, 50, and 75 per cent water concentrations, in addition to the previously mentioned six concentrations. The results were plotted as the top curve in Figure I. The data supported the assumption. Therefore, all curves were drawn according to this assumption. From the typical curve at top of Figure I it is evident that water additions higher than five per cent are unnecessary to show the maximum boiling point depression due to water in brake fluids.

Figure I shows how the reflux boiling points of four commercial heavy duty brake fluids are greatly affected by small quantities of water. One per cent water depresses the boiling point from 25 to 40°F.; two per cent water, from 40 to 60°F.; and five per cent water, from 71 to 92°F. At one per cent water level, two of the four brake fluids have a boiling point above the specified S.A.E. 300°F. minimum. At two per cent water, only one fluid still conforms to the minimum 300°F. boiling point.

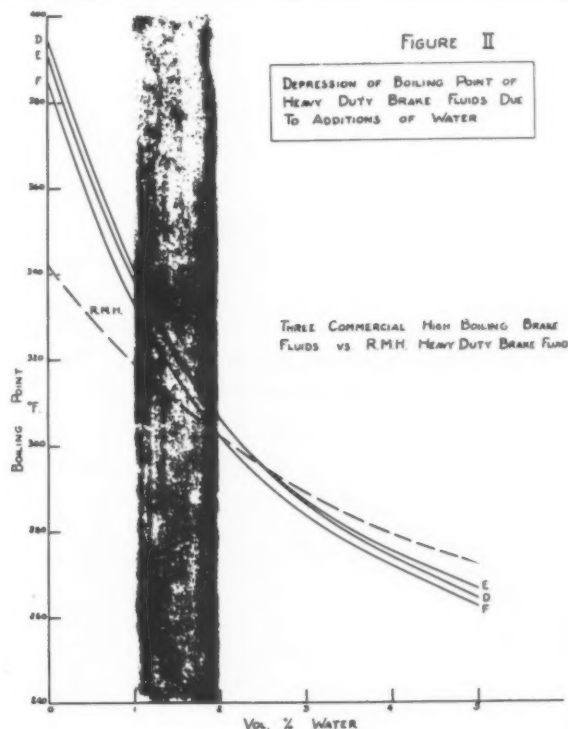
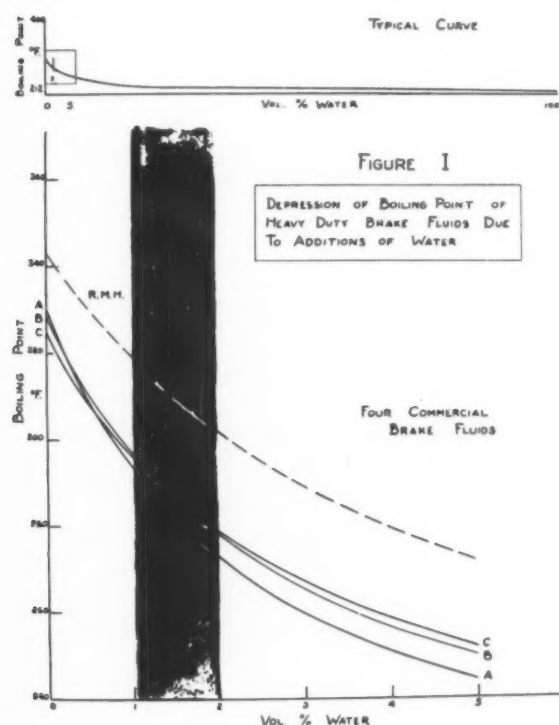
Figure II is a comparison of boiling point depressions, due to water, of three commercial high boiling brake fluids versus the same heavy duty brake fluid seen in Figure I, designated as R.M.H. The addition of only one per cent water lowers the boiling points of all three high boiling fluids to approximately the same initial boiling point as the regular heavy duty brake fluid. With the addition of two per cent water, all four fluids have approximately the same boiling point.

The boiling points versus the per cent water added from

Figures I and II are tabulated in Table II. The "Initial" area represents the reflux boiling points of the brake fluids with no added water. The area designated as the "Critical Range" represents the boiling points between one and two per cent water, covering conditions rather common in normal driving. Above this critical range where the addition of water is greater than two per cent, all the fluids, including the high boiling fluids, fail to meet the 300°F. S.A.E. minimum boiling point. Therefore, on the one per cent water end of the critical range, the regular heavy duty brake fluids are borderline to the 300°F. minimum boiling point and on the two per cent water end, the high boiling brake fluids are borderline to the S.A.E. 300°F. minimum boiling point.

Since many commercial brake fluids available at the present time are essentially composed of a base material along with glycols and glycol ethers, the effect of water on the boiling points of these two

(Turn to Page 87)



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TABLE III

REFLUX BOILING POINTS  
COMMERCIAL GLYCOLS

Glycol	Volume % Water Added					
	0.0%	0.5%	1.0%	2.0%	3.0%	5.0%
A	524	483	443	376	348	304
B	452	434	404	372	340	310
C	428	410	392	349	326	280
D	405	389	377	356	332	308
E	384	376	366	353	340	322
F	374	350	330	296	274	257
G	363	356	346	334	320	307

INITIAL

CRITICAL RANGE

groups of chemicals was investigated.

Table III shows reflux boiling points with respect to water additions of some commercial gly-

cols. One per cent water depresses the reflux boiling point of various glycols from 17 to 81 degrees; whereas, five per cent water depresses the boiling points from 56

TABLE IV

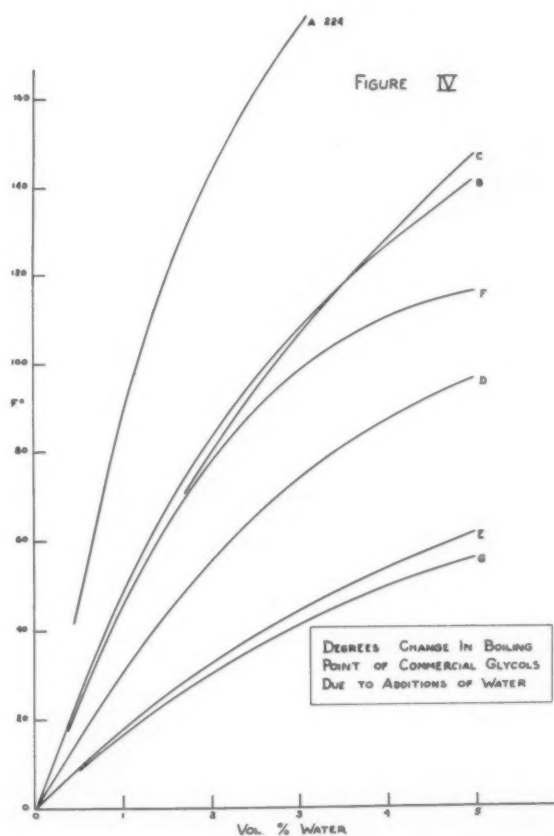
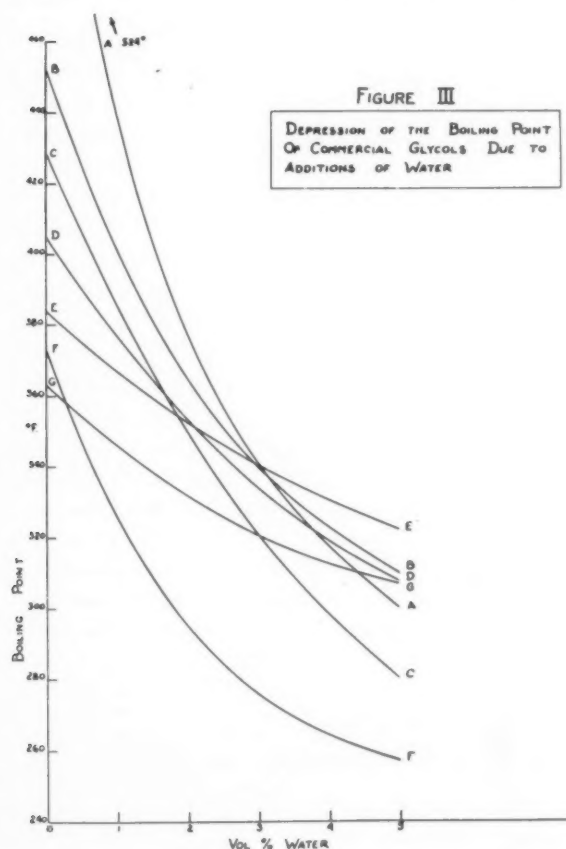
REFLUX BOILING POINTS  
COMMERCIAL GLYCOL ETHERS

Glycol Ether	Volume % Water Added					
	0.0%	0.5%	1.0%	2.0%	3.0%	5.0%
A	438	388	348	305	284	261
B	430	360	312	276	248	232
C	426	376	332	282	264	238
D	405	362	330	294	266	250
E	392	371	336	310	292	268
F	384	365	342	314	292	268
G	374	356	342	316	297	277

INITIAL

CRITICAL RANGE

to 224 degrees. Figure III is a plot of the boiling points of the glycols in Table III. Figure IV shows more dramatically the extremely  
(Turn to Page 197)



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# Cationic Fabric Softeners

By Paul L. Du Brow and Werner M. Linfield\*

Armour & Company  
Chicago

**T**HE general area of interest covered by the cationic softeners is somewhat limited—it affects, at least indirectly, just those people who wear clothes.

Some of us, of course, are more directly concerned, particularly those who are classed as fiber processors or fabric finishers or more recently, as launderers. But only because of the demands of the consuming public.

Silk, the aristocratic fiber of the past, had a luxury look and feel; it was soft and pliable on handling and draped nicely. Serious disadvantages, however, have gradually led to the general replacement of silk by a whole host of new natural and synthetic fibers. But the sales appeal of silk still remains, and the manufacturer who can supply improved softness, or "hand," as it is called, and drape, along with the versatility and cheapness of the newer fabrics, is obviously ahead in the economic race for increased consumer markets.

Softness, of course, is greatly affected by the size and twist of the base yarn, by weaving design, etc., but chemical additives which will soften the yarn itself are obviously desirable milestones to this same goal. Among the more effective of such additives is a class of compounds known as the cationics.

The cationics are true ionizable organic salts. Like sodium chloride, they ionize completely in dilute aqueous solution and will migrate under the influence of an imposed electric force. Unlike the anionics, however, the long alkyl,

or hydrocarbon, chain is an integral part of the cation, the positively charged ion. For this reason, because of the reverse alkyl attachment, these compounds are sometimes known as invert soaps.

The major practical chemical groupings in this classification are the tertiary amine salts and the quaternary ammonium salts, containing a pentavalent nitrogen atom. In both cases, the long hydrocarbon chain is directly attached to the nitrogen itself.

The longer saturated alkyl chains ( $C_{10}$ - $C_{18}$ ) are preferred for softening, but reduce water solubility, while conversion of the amine function to a quaternary ammonium salt definitely makes for increased solubility, greater pH stability, and generally better softening characteristics. The anion may be acetate, chloride, bromide, methyl sulfate, lactate, phosphate, etc. In general, however, the structure and composition of the cation will determine the overall effect of the molecule; the anion only certain physical characteristics.

The quaternaries, as chemicals, were first prepared in the early 1900's and remained as laboratory curiosities for the next 30 years. Sometime around 1935 interest in the quaternaries was suddenly revived by the discovery of their very high germicidal activity. In the late 1930's they made their first appearance in the textile field, with the discovery that they improved the fastness of direct dyes, particularly to water bleeding, by precipitation of the dye anion on the fabric. Alkali and detergents, however, easily removed the dye. Although

these early cationics were poor softeners, the realization slowly grew that here was a new group of potential fabric softening materials. Later chemical developments bore out this early promise, and the synthesis of new members of this class of compounds has now pushed the cationics to the forefront as textile softeners.

How do these new additives differ in function from those previously known, the anionics and the nonionics?

## Cationics as Softeners

**T**HE cationics like the anionics, are usually molecules whose components are well balanced between a hydrophobic chain and a hydrophilic functional group. Assuming, at least for most of the naturally occurring cellulosic fibers, a negatively charged surface, there is a definite attraction and bonding between cation and surface at the filament interface, leaving the hydrocarbon chain as a tightly held, bound, hydrophobic umbrella. The external phase, therefore, will have a well lubricated surface, giving a soft "hand" and functioning somewhat like a boundary lubricant for metals. The hydrophobic-hydrophilic balance, of course, will determine solubility and strength of adsorption, with the hydrophobic element naturally tending to predominate.

The primary effect is one of lubrication, of increased yarn to yarn or filament slippage, but the cationics affect each of the components of softness—flex, compressibility, surface lubrication, etc. It is definitely not a plasticizing effect since there is marked activity on

\* Paper presented during 43rd annual meeting, Chemical Specialties Manufacturers Association, Washington, D. C., Dec. 5, 1956.

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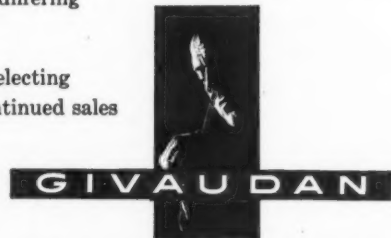


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glass fibers, little effect on cellulose films, and decreased fiber tensile strength (due to better filament slippage). As a surface effect, of course, neither excess nor deep penetration is needed.

The non-cationics, on the other hand, exhibit no substantivity (direct surface attachment, that is), and operate solely by solution evaporation. This results in a loose covering of the fiber with an oily film and the hydrophilic functional group facing out, giving a sued feel. The effect is one of poor lubricity, only pliability and flex, although the incorporation of fats or oils will help.

Obviously, too, we would expect less substantivity or activity from the cationics on the synthetic hydrocarbon fibers than on the cellulose, and indeed the order of increasing adsorption is from Orlon and Dacron to Nylon, to acetate, cotton, viscose and wool.

We have discussed cationics as though they were a single entity. Although they have properties in common, they also show individual differences, and where and how they are most effective is a function of the specific molecule under discussion. And please bear in mind that this is still somewhat of an empirical science. Softening is a function not only of the softener but of the particular fabric used, method of application, concentration, pH, subsequent treatment, etc. We can make recommendations, but no guarantees, in any specific system.

Some of the major groupings in the class of cationic chemicals should now be outlined. Remember, again that this is on the basis of functional group, with large variations possible within the group. As far as possible we will indicate representative brand names for each, but there seems to be a certain reluctance to divulge such information and a tendency to hide behind generic names.

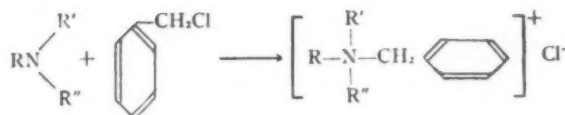
The cationics, in general, are wetting agents, reducing surface and interfacial tension and con-

centrating at interfaces. In very dilute solution they form simple ions, condensing to micelles at somewhat higher concentrations, with resultant changes in viscosity, density, conductivity etc. They all contain one or more hydrocarbon chains, for the desired lubricity effect. The differences occur in the functional groups, which affect solubility, sensitivity to electrolytes, strength of adhesion, cost, ease of manufacture, etc.

The simplest cationics are the primary, secondary, or tertiary mono-amines and their salts, the neutralization products of the amines with, usually, acetic acid. These amines are represented by the following formulae:

$RNH_2$ ,  $R_2NH$ ,  $RN(CH_3)_2$ , etc. and are insoluble in alkaline solution.

The primary and secondary amines are insignificant factors in the textile field, since free hydrogens on the nitrogen intensify fabric yellowing. They serve, fundamentally, as starting materials for the more important derived quaternary ammonium salts. The "Armacs"\* and "Onyxans"\*\* are typical commercial representatives for this classification. Reaction with alkylating agents (methyl chloride, benzyl chloride, dimethyl sulfate, e.g.), according to the following formulation, converts the amines to the more soluble, more active, pH stable quaternary ammonium salts.

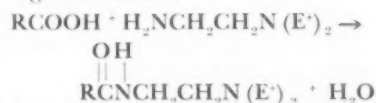


(Where R' and R'' are alkyl or aryl groups.)

Heat stability is excellent, especially on the acid side. These simple

quaternaries may be represented by the "Arquads"\* (alkyl or dialkyl dimethyl ammonium chlorides), "Triton K-60"\*\*\* (hexadecyl dimethyl benzyl ammonium chloride), "Rocca,"† "Zephiran,"‡ "Ammonyx,"\*\* etc.

The second general classification, the amidoamines, involves those compounds formed by the reaction of a fatty acid or glyceride and a substituted or unsubstituted short chain polyamine. Reaction, here, occurs generally with only one of the amine functions, converting it to an amide and leaving one or more unreacted amino functional groups. The amine may be diethylene triamine, N,N di-ethyl ethylene diamine, etc. (derivatives of ethylene diamine itself melt too high and exhibit poor solubility characteristics), and the reaction proceeds according to the following formulation:



These, as their acetates or hydrochlorides, constitute one of the largest groups of cationic textile softeners and are marketed under the trade names "Sapamine,"††††† "Ahcovel,"\*\*\*\*\* "Alromine,"\*\*\*\*\* etc. These are especially good for chlorinated wools, which are quite harsh. Conversion to the quaternary follows the general form outlined above, giving improved solu-

bility and softening. All members of this group are quite stable to hydrolysis, since the amide grouping is quite resistant in this respect.

The third general classification is that of the imidazolines, or glyoxalidines, derived in turn from certain of the amidoamines mentioned above. High temperature treatment of these intermediates leads to the loss of another molecule of water and cyclization to a ring structure, as follows:

\* Registered trade mark of Armour & Co., Chicago.

\*\* Registered trade mark of Onyx Oil & Chemical Co., Jersey City, N. J.

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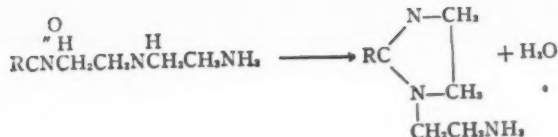
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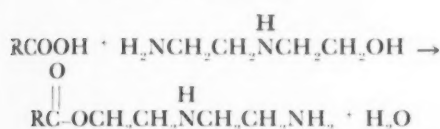
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This has the advantage of lowering melting point and increasing solubility over that of the parent amidoamine. These products can be acetylated, neutralized, or reacted with ethylene oxide and include the "Onyxans,"\*\* "Kata-pols,"\*† "Amine 220,"\*†† "Alrom-ines,"\*\*\*\*\* etc. These also represent a large group of additives, hydrolysis resistant and easily converted, obviously, to the corresponding quaternary.

A fourth classification, the amino esters, are prepared by fatty acid or acid chloride reaction with amino alcohols, e.g. diethanol amine, hydroxyethyl ethylene diamine, etc. as follows:



These derivatives are quite water soluble, give good finishing characteristics, and are easy to make, but have the definite disadvantage of being easily hydrolyzed, the trade mark of the ester group. Trade name compounds are the "Sorom-ines,"\*† "Emulphors,"\*†† etc. The derived quaternaries are also readily subject to hydrolysis.

A large miscellaneous class of compounds also exists, among which may be included the carbamides, biguanidines, phosphoniums, amphoteric compounds (cationic in acid medium), pyridinium compounds, benzimidazoles, etc. These represent the bulk of the cationics available to date. We are sure some were unmentioned and we are just as sure that new ones will soon be forthcoming, but this paints an adequate picture at the moment.

Having seen something of the physical properties of the cationics, their chemical structure, and

how they function, let us turn for a moment to their mode of application.

### Application of Cationics

THE cationics can be applied in the same way as any textile additive; by an ordinary padding operation, by exhaustion, which involves longer contact times and more dilute solutions. Exhaustion, of course, is a function of the direct attachment of the cation on to the fiber, thereby removing it from solution. A weekly alkaline solution and a heavy dye concentration reduces the fabric precipitation effect on the dyestuff anion noted above. Solution exhaustion may be increased by several factors: raised pH; increased temperature conditions, which also increase undesirable dyeing side effects, so that optimum temperatures must be sought; increased electrolyte concentrations, which also increase dye streaking; and, finally, increased fabric-to-solution ratio. Usual solution concentrations run from 0.5 to one per cent of fabric weight as a 0.1 per cent solution. In laundry applications, the quaternary is present to the extent of 0.1 per cent of the weight of the clothes. And, as in so many other situations, this is one in which if a little is good, more is not necessarily better. In excess, a maximum of two per cent usually, the natural physical tackiness or rigidity of the softener will come into effect, actually reducing natural fabric softness. Incidentally, application from a non-polar solvent is also possible if desired, since certain of the quaternaries show definite solubility characteristics for such solvents.

### Cationic Advantages

CERTAIN of the advantages of the cationics have been pointed out, namely, their substantivity, which involves complete exhaustion and firm bonding, and their

high degree of softening. This, however, does not complete the list of plus values, because the cationics exhibit certain other desirable nonsoftening properties and compatibilities, all more or less a function of their peculiar physical and chemical composition.

They will, for example, exhibit improved fiber tear strength, because of increased internal lubrication which reduces the effect of abrasion. They make for better sewability and reduced needle cutting, lubrication here allowing the high-speed needle to push the fiber aside without cutting the thread. On one wool nylon shirt, at 4500 stitches/min., only one to two yards could be sewn; with the softener, a minimum of 52 yards. The cationics are quite compatible with the recently popular thermosetting resins of the urea-formaldehyde type used for crease resistance and shape retention, and with their acid catalysts. These materials, like scouring agents, may leave the fabric in a particularly harsh condition. Cationics exhibit a definite and highly desirable anti-static effect, particularly on the more hydrophobic fibers, because of their marked ability to hydrate or act as an ionized particle, allowing charge leakage into the atmosphere. They are compatible with the wax-aluminum salt type water repellent and, in fact, they can themselves serve as the starting material for water repellents. Certain of the pyridinium quaternaries, for example, are effective softeners at ordinary temperatures. At elevated temperatures they decompose to a highly water-insoluble, fiber-impregnating permanent water-repellent film—the so-called "Zelan" process. Cationics are compatible with flame retarders, are soluble in hard waters, can act as moth proofers, and are compatible with fabric weighters. Finally, something should be said about their activity as germicidal agents, particularly with reference to their application in the textile field.

Although specific information, again, is not always avail-

\*† Registered trade mark of Antara Chemicals Division, General Aniline & Film Corp., New York.

\*†† Registered trade mark of Carbide and Carbon Chemical Co., New York.

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able and is somewhat conflicting, in general the simple quaternaries containing one long alkyl chain show the highest germicidal activity. Optimum chain length will vary with organism; for example, hexadecyl chain length is best for *E. coli*, while the octadecyl chain seems best for *M. pyogenes*. Activity will vary from chlorinated benzyl alkyl quaternaries, with a bactericidal action of one part in 40–60,000 for *E. coli*, to about one part in two–5,000 for those quaternaries containing two long alkyl chains. This reduced activity may be due to decreased water solubility, steric hindrance, or a dilution effect on the functional group. The incorporation of ethylene oxide into the molecule also drastically reduces germicidal activity. Maximum effect on fabrics is noted where treatment constitutes a final processing step and no further washing or cleaning is attempted. In such cases the quaternaries will have a definite sanitizing effect. Concentrations of 0.1 per cent will inhibit organism and mold growth, effectively functioning as deodorizers and fabric mildew preventives. In diaper treatment they eliminate urea decomposition and odor formation and reduce diaper rash in infants.

Where further treatment occurs, the picture is, however, not as encouraging. Ordinary water washing gradually removes excess cationic and reduces its bacteriostatic effect, while detergent treatment, of course, will inactivate the cationic and markedly reduce inhibition and mildew resistance.

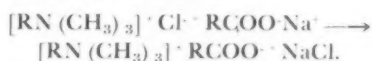
The germicidal advantages, therefore, are somewhat limited—as a protectant for fabrics in storage and in uses where repeated applications will be the normal course of events. This latter approach is becoming more important with the growing use of cationics as last rinse treatments in commercial and home laundries. More will be said about this later.

Now for the debit side of the ledger, and there always is one, in

spite of the promising picture outlined so far.

### Cationics' Shortcomings

**F**IRST and foremost, of course, is their lack of general compatibility with certain of the common textile processing agents. The anionic detergents and soaps react with and precipitate the cationics, giving an insoluble unionized long chain cation—long chain anion combination, as follows:



(Some use has been made of this by precipitating the compound first and then suspending it with excess cationic and using it for a textile finish softener. Side reactions with dyestuff are reduced here, too.) This precipitation, of necessity, eliminates their use in anionic detergent processing solutions, on poorly rinsed detergent treated fabrics, and where further washing is contemplated and permanence is necessary. Softening, germicidal, and anti-fungal activity are all reduced. All this makes necessary the incorporation of these softeners, if they are to be effective, as after rinses for fabrics, after detergent removal. Some loss in the dry cleaning process has also been noted.

The cationics are generally incompatible, too, with pigment type dullers such as titanium dioxide and the bentonites. As noted before they have a general color-dulling effect and may affect light fastness of dyes and even color shade, with pinks showing yellows and blue shading into reds. Proteins tend to precipitate with quaternaries, too, and anionic gum finishes give sticky by-products, although other dextrin and starch sizes are quite compatible. And, lastly, there is sometimes a yellowing effect, particularly on aging bleached cottons. Color stability to elevated temperatures is usually good, although here again, as with most properties, the base fiber will make for wide individual differences. In general, however, many of these difficulties may be all or

partially overcome by the synthesis of properly designed cationic molecules.

As for application, the largest area to date has been in the cellulosic finishing market, to give an initial softening effect and reduce fabric harshness and scratchiness. The fiber processing field has long looked upon the cationics as of doubtful value, because of their high substantivity and inability to be easily scoured. The development of new chemicals in this class has caused textile people to give the cationics another hard, close look in this application.

The last application area, which gives promise of being the most extensive, is the use of the cationics as after rinses by the commercial laundries (to supply plus factors for their customers), and more recently by the besieged housewife. This can best be illustrated by the effect of "Arquad 2HT," one of the best of the commercial softeners, and a quaternary derived from "Armeen 2HT" and methyl chloride. It contains two long hydrogenated tallow alkyl chains. Used as a laundry after rinse a noticeable softening, accompanied by a very definite "lofting" effect is obvious. The "Arquad 2HT," sold as a 75, 40 or 7.5 per cent solution or suspension, also contributes several other plus values of interest to the housewife and laundry. It will, for example, make for easier shakeout of large pieces, because of softening and antistatic effect; for better flatwork feed into an ironer; for shorter drying time reduced by 25 per cent, showing less water retention than untreated material; for easier folding and reduced wrinkling and linting; and for less mildew and diaper rash, by its anti-mycotic and bacteriostatic activity. Over treatment, of course, must be avoided as the fabric will tend to become water-repellent and greasy. A 0.1 per cent concentration, basis fabric, is recommended. Intervening washings, of course, tend to remove the cationic and avoid buildup on the fabric.

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And, lastly, the entry of the cationics into the direct consumer market gives most promise for a truly mass outlet, if the housewife can be educated to the after rinse, or if washing machines can be further developed to include an automatic after-rinse injection.

What remains to be done in the cationic field, and where are the profitable lines of attack from a research standpoint?

In the fiber processing field, in the direction of less substantivity

and increased ease of scouring; in the fabric finishing field, in the direction of increased permanence and increased detergent resistance; and in the direct consumer market, in the direction, again of increased detergent compatibility and ease of handling.

Upon the success or failure of these research approaches will depend the development of the cationics as truly versatile textile additives and mass markets which potentially they can secure.

organic Alkaline Detergents, which led to modifications prior to acceptance.

After luncheon a general meeting was held at which the subcommittee chairmen presented their reports. These were followed by two papers: "A New Instrument for Optical Brightener Evaluation," by H. W. Zussman of Geigy Industrial Chemicals Division, Ardsley, N. Y., and "Application of Ion Exchange Chromatography to the Analysis of Commercial Triphosphate," by W. G. Spangler, D. E. Howes, Jr., and J. Kish, Research and Development Department, Colgate-Palmolive Co., New York. Presented by J. Kish, the paper actually described two methods. One is a relatively rapid control method whereby only the orthophosphate and pyrophosphate are determined by elution. The triphosphate along with a small percentage of higher phosphates is calculated by difference. The second method is a referee method in which all three phosphates are determined directly by elution, which can serve as a check on the validity of the triphosphate value obtained by the first method.

Simplicity, accuracy, and precision are claimed for this method, which Colgate plans to adopt in its domestic and foreign control laboratories.

## Committee D-12 Holds Annual Meeting

Committee D-12 on Soaps and Other Detergents of the American Society for Testing Materials held its annual meeting March 11 and 12 at the Park Sheraton Hotel, New York. Jay C. Harris, Monsanto Chemical Co., Dayton, O., general chairman of D-12, officially opened the meeting Monday morning, March 11. His remarks were followed by meetings of three subcommittees: S-4, Specifications for Inorganic Alkaline Detergents (William Stericker, Philadelphia Quartz Co., Philadelphia, chairman); T-4, Analysis of Inorganic Alkaline Detergents (W. H. Koch, Olin Mathieson Chemical Corp., Niagara Falls, chairman); and T-6, Analysis of Metal Cleaners, (H. A. Kafarski, Ford Motor Co., chairman).

In the afternoon of March 11, the meeting of subcommittee T-5, Physical Testing, (M. G. Kramer, Wyandotte Chemicals Corp., Wyandotte, Mich. (chairman) was held; followed by T-3 and S-3, Dry Cleaning (J. R. Wiebush, Silk & Rayon Dyers & Printers Association, New York and Paterson, N. J., chairman) and G-1, Advisory (J. C. Harris, chairman).

In the morning session, March 12, subcommittee S-2, Specifications for Soaps and Synthetic Detergents, met under its new chairman, W. H. Joy, Bell Telephone Laboratories, Inc., New York, who proposed that the group cease to

concentrate on soap products and interest itself more closely in standards for up-to-date detergent formulations.

Subcommittee G-2, Nomenclature and Definitions, met under the chairmanship of L. T. Howells, Beach Soap Co., Lawrence, Mass., to discuss proposed definitions for "precision," "accuracy," "syndet," "surfactant" and "ampholytic syndet." No definition was agreed upon for "accuracy." "Syndet" is a contraction of the term synthetic detergent used loosely to signify synthetic detergents and/or compositions containing synthetic detergents. "Surfactant" is a contraction for the term surface active agent. "Ampholytic surfactant" or "amphoteric surfactant" is a surface active agent capable of forming in aqueous solution surface active anions or surface active cations, depending on the pH. "Precision" was also defined.

J. C. Harris, chairman of subcommittee T-2, Analysis of Soaps and Detergents presented a report and called on the leaders of task groups to report on their work. Task group 2 has evolved a method for the rapid spectrophotometric determination of copper in soap, which was accepted as tentative. Task group 6 presented a volumetric method for total  $P_2O_5$ . A number of objections were raised against this method by W. H. Koch, chairman of T-4, Analysis of In-

## Carbide Expands

Construction of additional facilities at its South Charleston, W. Va., morpholine plant, were announced recently by Carbide and Carbon Chemicals Co., New York. According to E. E. Fogle, vice-president, the expansion, which is scheduled for completion later this year, will double the plant's capacity. Mr. Fogle said that construction of the new facilities is a part of the company's expansion in ethanolamines and ethyl oxide. A new ethanolamines unit has just been completed at Carbide's Seadrift, Tex., plant, and a new ethylene oxide glycol-polyethylene plant recently began commercial production at Torrance, Calif.

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# CSMA Meets May 20-21 in Chicago

**Tentative program set for 43rd midyear meeting  
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**N**EW developments in chemical specialties, from both manufacturing and marketing standpoints, will be discussed in the formal program at the 43rd midyear meeting of the Chemical Specialties Manufacturers Association. The meeting will be held at the Drake Hotel, Chicago, Monday, Tuesday and Wednesday, May 20-22.

Tentative program details announced late last month by H. W. Hamilton, CSMA secretary, call for meetings of the six divisions of which the association is composed. These meetings will be individual or joint sessions. The midyear meeting of CSMA formally opens Tuesday morning, May 21, with simultaneous sessions of four divisions. The previous day, Monday, May 20, will be taken up with meetings of the association's board of governors and committees and sub-committees of CSMA.

Following a group luncheon on Tuesday, at which there will be a speaker, two divisional meetings will be held that afternoon. In addition, there will be a showing of several motion pictures. Post luncheon activities on Tuesday also call for a general session at which time a nominating committee will be chosen to select a slate of officers and members of the board of governors for 1958. The election of these officers and directors will take place at the annual meeting at the Hollywood Beach Hotel, Hollywood, Fla., Dec. 9-12.

Chairmen, vice-chairmen and members of the administrative committees of the six divisions will be elected during the 43rd midyear meeting, and will take office early next year.

A general session will be

held Wednesday morning, May 22, followed by a group luncheon. That afternoon the divisions will continue their sessions.

On the social side, the company open house parties in the suites of suppliers will be held Tuesday evening. Group luncheons are scheduled for both Tuesday and Wednesday, and the meeting concludes with the cocktail party, banquet and floor show on Wednesday night, May 22.

The tentative program for the 43rd midyear meeting of CSMA follows:

On Tuesday morning, May 21, four of CSMA's six divisions will hold concurrent meetings. The Aerosol Division will hear an address by its chairman, Charles E. Beach, John C. Stallfort & Sons, Baltimore. R. W. Svendsen, Chase Products Co., Broadview, Ill., chairman of the nominating committee will present a report, which will be followed by election of the administrative committee for 1958. Three papers are scheduled for this session: "Manufacture and Use of Aerosol Cans in Europe," by A. Taranger, Aluminum Union Ltd., Montreal, Canada; "Hydrocarbon Propellants," by Lyle D. Goodhue, Phillips Petroleum Co., Bartlesville, Okla.; and "Problems in Producing Non-Aerated Aerosols," by W. E. Graham and G. A. Klitsch, Crown Cork and Seal Co., Can Division, Philadelphia. Frederick G. Lodes, Lodes Aerosol Consultants, Inc., New York, will report on the Annual Aerosol Product Survey.

The first session of the Disinfectants and Sanitizers Division will be opened by A. G. Bowers, Pioneer Manufacturing Co., Cleveland, division chairman. Papers to

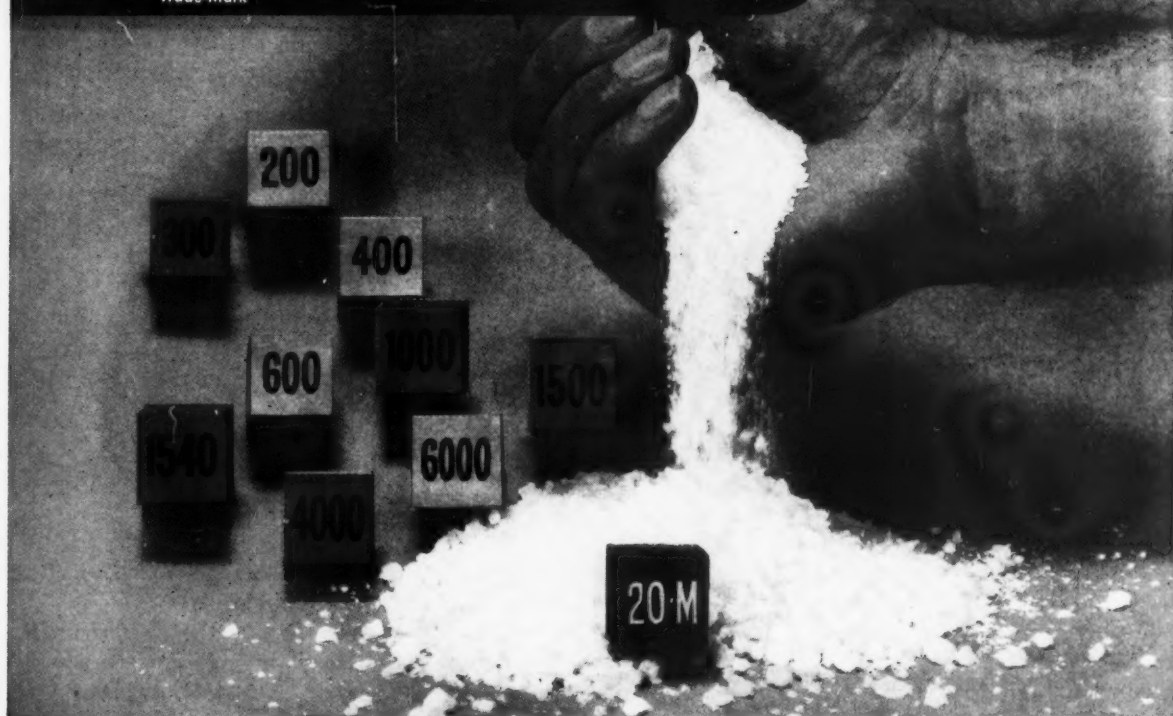
be presented will be announced shortly. E. G. Klarmann, Lehn and Fink Products Co., New York, will present the report of the nominating committee, which will be followed by election of the division administrative committee for 1958.

Clarence L. Weirich, C. B. Dolge Co., Westport, Conn., chairman of the Soap, Detergents and Sanitary Chemical Products Division will open that division's Tuesday morning session. He will be followed by Melvin Fuld, Fuld Brothers, Inc., Baltimore, who will give the report of the nominating committee, following which election of the administrative committee for 1958 will take place. A symposium on "Ethylene Oxide Nonionics" will have as its moderator A. B. Steele, Carbide and Carbon Chemicals Corp., New York. The symposium will consist of seven papers: "Alkyl Phenol - Ethylene Oxide Nonionics," by a speaker from General Aniline & Film Corp., New York; "Alcohol - Ethylene Oxide and Related Nonionics," by a speaker from Atlas Powder Co., Wilmington, Del.; "Tall Oil and Related Fatty Acids - Ethylene Oxide Nonionics," by W. P. B. Satkowski, Monsanto Chemical Co., research department, Everett, Mass.; "Thioether Ethylene Oxide Nonionics," by John L. Eaton, Whitmarsh Research Laboratories of Pennsylvania Salt Manufacturing Co., Philadelphia; "Amine - Ethylene Oxide Nonionics," by Vance P. Gregory, Armour & Co., Chicago; "Polymeric Ethylene Oxide Nonionics," by a speaker from Wyandotte Chemicals Corp., Wyandotte, Mich.; and "Isolation and Determination of Non-

(Turn to Page 108)

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CARBOWAX polyethylene glycol 20-M gives you new opportunities to use this versatile series. Because of its higher molecular weight, its melt and solution viscosities are higher, films formed from it are harder and stronger, and its lubricating action is greater.

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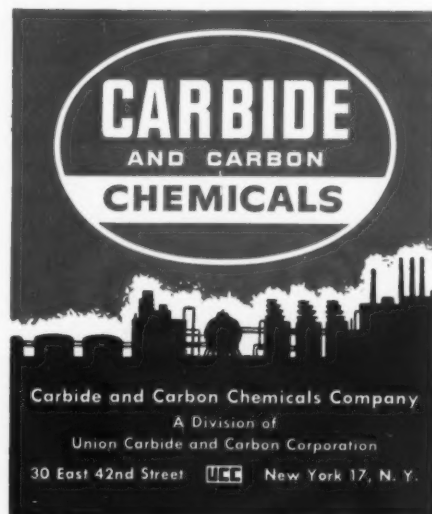
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SOAP and CHEMICAL SPECIALTIES



## Analysis of

# Volatile Aerosol Constituents

By M. J. Root and M. J. Maury\*

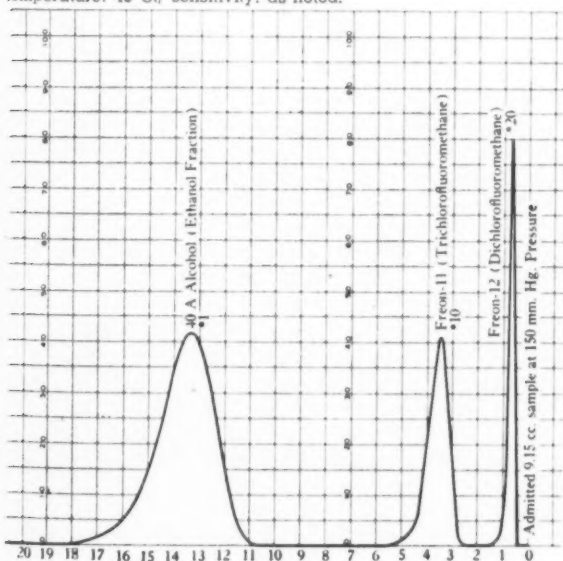
G. Barr & Co.  
Chicago  
Part II

**F**IGURE 11 is a chromatogram of a 2.0 cc, vaporized liquid sample of "Freon" 12, "Genetron" 101 and "Freon" 11 solution. These components were completely resolved. However, comparison of the elution time of "Genetron" 100 with the elution time of "Freon" 114 indicated that these two components would not be resolved with this column if both were present. Checks were made, and it was found that resolution of these two components can be obtained on a 12-foot hexadecane column.

Figure 12 is a chromatogram

\* Paper presented Dec. 4, 1956 during 43rd annual meeting, Chemical Specialties Manufacturers Assn., Washington, D. C.

Figure 12. Chromatogram of 9.15 cc. sample at 150 mm Hg of a "Freon" 11-12, 40 A alcohol mixture. Analysis made in 4 ft. Span 85 column; regular pressure: 38#; carrier gas: helium; flow rate: 115 cc. min.; current: 250 milliamperes; chart speed: 0.5 in./min.; temperature: 40°C.; sensitivity: as noted.



	Weight %	Synthetic Mix Weight %
Air	0.1	
Freon 12	24.5	25.0
Genetron* 100	25.3	25.0
Genetron* 101	25.7	25.0
Freon 11	24.9	25.0
	100.5	

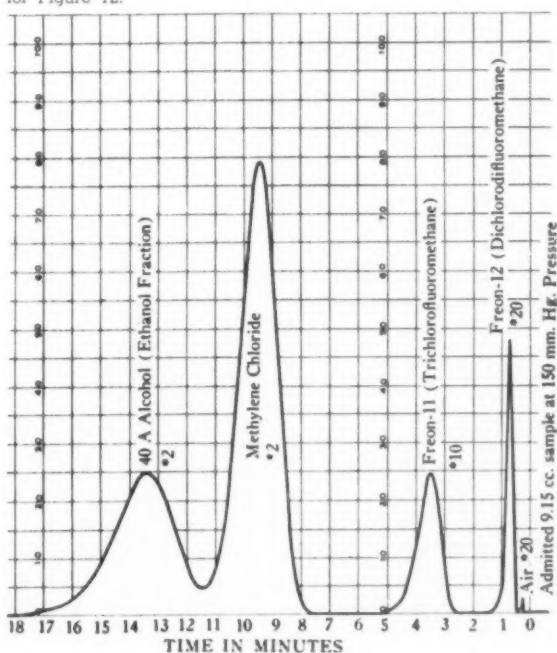
\* Genetron is a registered trade mark of General Chemical Division of Allied Chemical & Dye Corp.

of a 9.15 cc. sample at 150 mm. Hg of the vaporized liquid from a "Freon" 11, "Freon" 12 and ethyl alcohol solution. Alcohol has a rather low vapor pressure at the temperature at which the chromatograph was being operated. In order to reduce the analysis time, the flow rate was increased and the col-

umn length shortened to four feet. Under these conditions, it was found that the standard columns being used did not permit adequate resolution between ethyl alcohol and methylene chloride. A number of new columns were investigated and it was found that a four-foot Span 85 column was best for this mixture. Although resolution was good with this mixture, we found that the weight percentages found did not check the percentages used. The reason for this will become evident later in this paper.

	Weight %	Synthetic Mix Weight %
Air	0.046	
Freon 12	45.4	35
Freon 11	38.4	35
Ethyl Alcohol	16.2	30

Figure 13. Chromatogram of a mixture of "Freons" 11-12, methylene chloride, 40 A of alcohol, under same conditions as shown for Figure 12.



# CSC NITROPARAFFINS



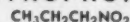
## NITROMETHANE



## NITROETHANE



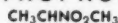
## 1-NITROPROPANE



## IMPROVING PROCESSES AND PRODUCTS



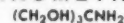
## 2-NITROPROPANE



## 2-AMINO-2-METHYL-1-PROPANOL



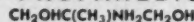
## TRIS (HYDROXYMETHYL) AMINOMETHANE



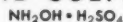
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**Table 2.**  
**Thermal Conductivities of**  
**Ethyl Alcohol and**  
**Dichlorodifluoromethane**  
**(Type II Propellant)**  
**at 40°C. (104°F.)**

$k = \text{BTU/hr.}/\text{sq. ft.}/^\circ\text{F.}/\text{ft.}$

<sup>a</sup> Ethyl Alcohol	.0089	$\frac{\quad}{\quad} = 1.39$
<sup>b</sup> Dichlorodifluoromethane	.0064	

Figure 13 is a chromatogram of a 9.15 cc. sample at 150 mm. Hg. of the vaporized liquid from "Freon" 11 and 12, methylene chloride and ethyl alcohol. The resolution between methylene chloride and ethyl alcohol was not complete, but it was sufficient to permit the accurate analysis of these two components using the peak height method.

	Weight %	Synthetic Mix Weight %
Air	0.20	
Freon 12	32.4	25.0
Freon 11	31.4	25.0
Methylene Chloride	23.5	25.0
Ethyl Alcohol	12.4	25.0
	99.9	

Here again the percentages found did not check with the amount put into the synthetic mix. From known samples of alcohol it was found that there was a factor of 1.4 of the amount known to the amount analyzed when peak areas

**Table 3.**  
**Operating Pressures**  
**mm. Hg.**  
**for Ethyl Alcohol**  
**at**  
**20°C. and 40°C.**

VAPOR PRESSURE ETHYL ALCOHOL		= MAXIMUM TOTAL PRESSURE	
MOL FRACTION ETHYL ALCOHOL			
% ETHYL ALCOHOL	MOL FRACTION	MAXIMUM TOTAL PRESSURE	
		mm. Hg.	
		20°C.	40°C.
30	.55	80 mm.	246 mm.
25	.44	100 mm.	308 mm.
V.P. ETHYL ALCOHOL 20°C. 43.9 mm.			
V.P. ETHYL ALCOHOL 40°C. 135.3 mm.			

were used. The factor 1.4 can be explained on the basis of the thermal conductivity. The fluorinated hydrocarbons have thermal conductivities which are nearly similar, whereas the ratio of the thermal conductivity of alcohol to that of "Freon" 11 is shown in Table 2.

From this it follows that quantitative results on ethyl alcohol as determined from the area of the curve will be low by a 1.4 factor. A further reason for error was that the alcohol in the samples taken at a pressure of 150 mm. would condense at room temperature and, therefore, not be in the vapor state in the sampling valve. From Table 3, we can see that the maximum pressure that can be used at 20° C.

with a sample that contains 30 per cent ethyl alcohol is 80 mm. The use of greater pressures results in condensing of the ethyl alcohol in the gas sampling valve and, hence, low results are obtained.

Figure 16 shows a synthetic sample made up with equal mol per cent of ethyl alcohol, "Freons" 11 and 12. By using a vapor pressure of 44 mm. Hg. and using the factor 1.4, the results indicate a variance between the amount present and the amount analyzed of only a few tenths of a percent.

Figure 17 shows an analysis of a hair lacquer containing 24.5 per cent by weight of ethyl alcohol. As can be seen, the check is very good.

Figure 16. Chromatogram of a synthetic sample made up with equal mol per cent of ethyl alcohol, and "Freons" 11 and 12. Analysis made under same conditions as shown in Figure 12. The quantitative analysis (mol. per cent) showed 33.4% of 33.3 ethyl alcohol actually present; 33.1% of 33.3 "Freon" 11 present and 33.5% of propellant 12 actually present.

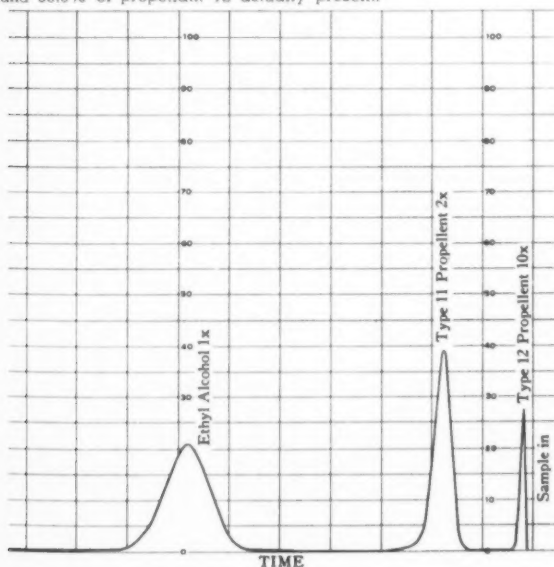
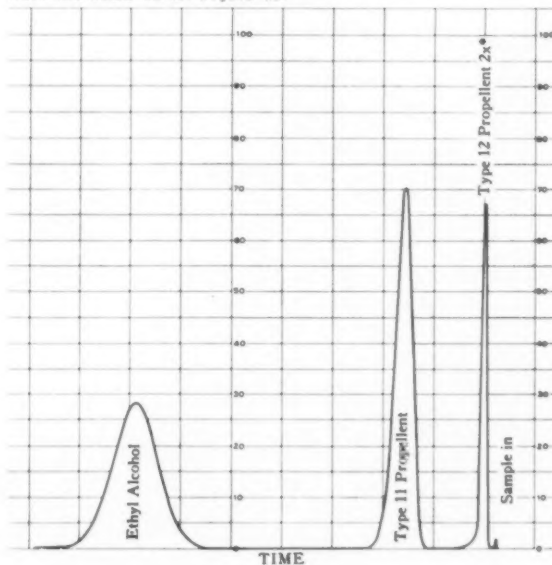


Figure 17. Chromatogram of a hair lacquer containing 24.5% by weight of ethyl alcohol, 50.50% propellant 11, and 25% type 12. Analysis showed 24.3% ethyl alcohol, 50.3% propellant 11 and 25.4% propellant 12. Conditions under which analysis were made were the same as for Figure 16.



# RENEX®

# Reports



CHEMICALS DIVISION  
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Adding a wetting agent such as RENEX 688, 690 or 698 improves efficiency of the alkaline cleaner . . . helps the cleaning solution to get in intimate contact with the metal surface to speed cleaning action. At the same time, it also helps to disperse the metallic soaps that may be formed by reaction with oils carried into the cleaner, and which would impair cleaning. About one pound of RENEX per 100 gallons of cleaner is needed.

Write to us for samples and data.



## Fast action for de-inking paper

Yesterday's newspaper often turns up in tomorrow's cartons and boxes . . . for waste paper is an economical source for many paper products. To get waste paper in shape for its next use, all the ink so carefully printed on it originally has to be removed. This is a fairly complex operation, winding up with a washing process using caustic soda or other agents to remove sizing, ink vehicles and pigments.

RENEX 697 is a real stand-out when you're taking ink off paper. It does an excellent job of wetting, cleaning and dispersing. It keeps the loosened ink in suspension . . . doesn't let it redeposit. It is a moderately low suds detergent, so it doesn't interfere with mechanical cleaning action. And it's stable in strong alkalis. RENEX 697 is high-powered; only ½ to 1% does the trick.

If you'd like to formulate for this market, write to us for samples and data on RENEX 697.

### Formulate to fit your needs with the RENEX 600 detergent family

RENEX No.	648	697	688	698	690	678	650
Mols ETO	5	6	8	9-9.5	10	15	30
Form @ 25° C.	liquid	liquid	liquid	liquid	liquid	liquid	solid
HLB No.	10	10.9	12.3	13	13.3	15	17.1
Wetting @ 25° C. (% soln. req. for 25 sec. wet)	—	.1 .2	.06 .08	.05 .07	.05 .07	.3 .5	>1
Foam height (Ross-Miles, mm .05% soln. @ 25° C.)	11	11	17	26	40	83	71
Cloud Point °F. (1% soln.)	—	<32	87	129	150	211	>212
Water solubility *	I	D	D	S	S	S	S

\* I—insoluble  
D—dispersible  
S—soluble

NOTE: These data represent typical characteristics rather than guaranteed specifications.



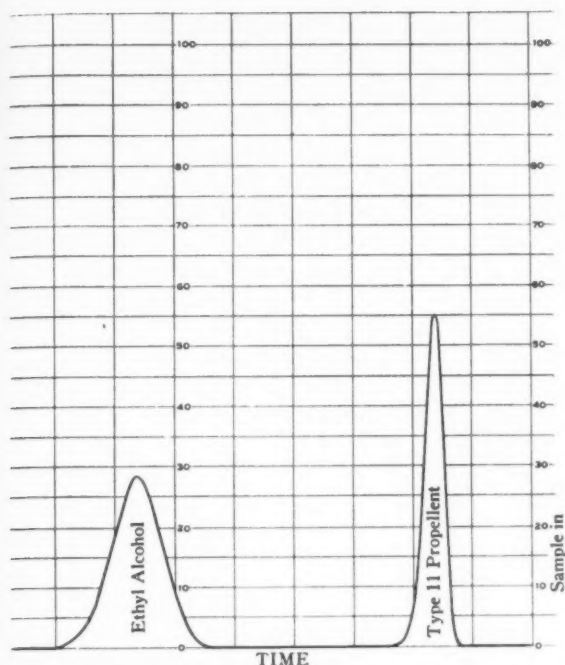


Figure 18. Chromatogram analysis of 50% ethyl alcohol and 50% propellant 11. Quantitative analysis shows 50.2% of ethyl alcohol and 49.8% of propellant 11.

Figure 18 shows the analysis of a mixture of equal molar parts of ethyl alcohol and "Freon" 11. The agreement here again is very good.

With due consideration of the maximum pressure at a given temperature to prevent condensation of the alcohol and the correction for thermal conductivity, very accurate analysis of the ethyl alcohol in propellant mixtures can be obtained.

Figure 19 shows the agreement that can be obtained between two samples of ethyl alcohol (1.55 cc.). This represents only 17 hundred thousandths of a gram, barely enough to be weighed. The pressure used in this case is 4.39 cm., which is the vapor pressure of the alcohol at 20° C.

Figure 20 shows the reproducibility with a mixture of 50 per cent propellant type 11 and 50 per

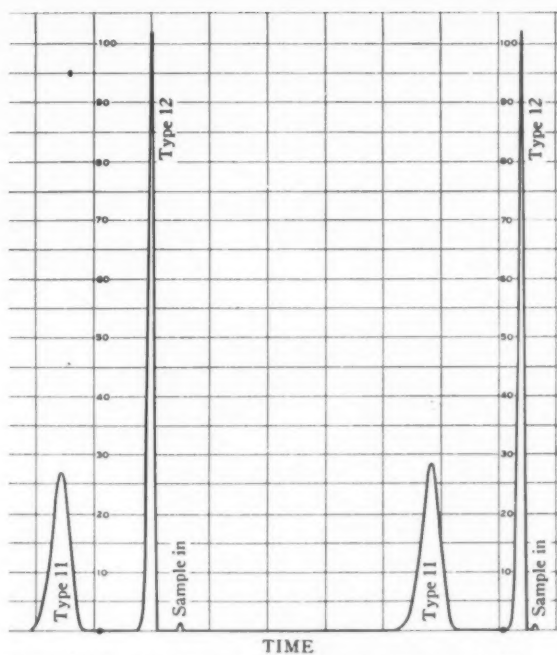


Figure 20. Showing the reproducibility with a mixture of 50% propellant 11 and 50% propellant 12. Pressure used is 12 cm. Hg. The sample is 1.55 cc. of gas. The reproducibility is  $\pm .3\%$ .

cent type 12. The pressure used is 12 cm. Hg. The sample is 1.55 cc. of gas. The reproducibility is  $\pm .3$  per cent.

Figure 21 shows an analysis of the vapor phase of a commercial window spray. This analysis was carried out at four different sensitivities to determine at which sensitivity it would be desirable to run each constituent.

Besides being able to deter-

Figure 19. Chromatogram analysis of two samples of 1.55 cc. of ethyl alcohol. This represents only 17 hundred thousandths of a gram, barely enough to be weighed. The pressure used in this case was 4.39 cm., which is the vapor pressure of the alcohol at 20° C.

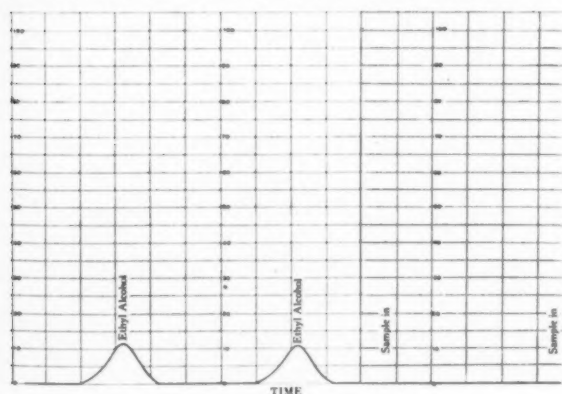
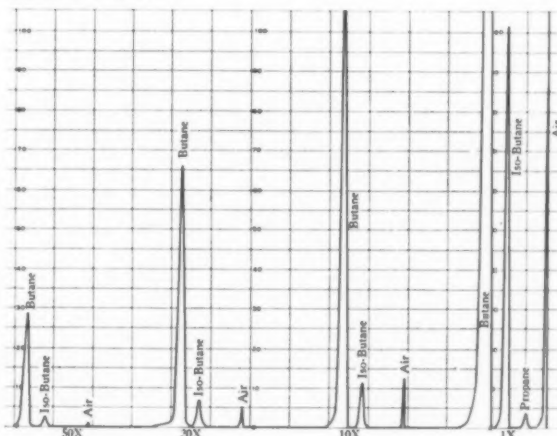


Figure 21. An analysis of vapor pressure of a window spray. This analysis was carried out at four different sensitivities to determine at which sensitivity it would be desirable to run each constituent. The analysis showed a trace of propane; 5% air; 10% iso-butane, and 85% butane.



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Her hurried steps across highly polished floors are *safer* steps because there's "Ludox" — Du Pont's anti-slip ingredient—in the floor wax. Tiny, transparent "Ludox" spheres in the wax exert a "snubbing" action on every foot-step . . . arrest the foot's forward motion . . . give the foot positive traction.

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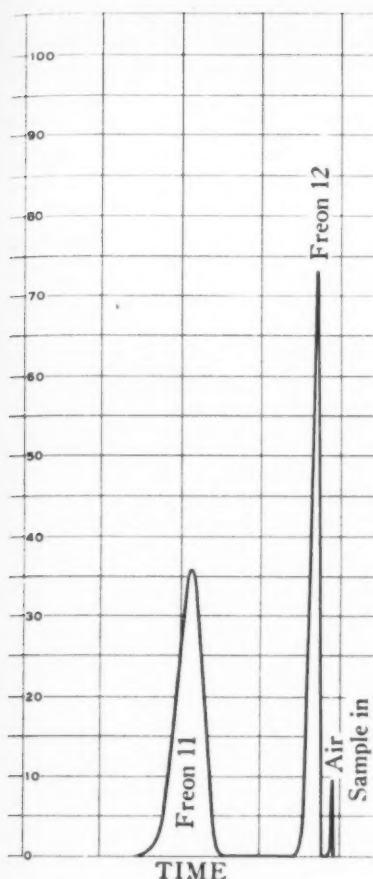


Figure 22. Chromatogram of propellant and air concentrations in a cold filled hair lacquer. Air is present to an extent of only 2.5% by volume. Sensitivity of air is 1x, "Freon" 12, 5x, and 11, 1x.

mine the volatile components in the vapor phase, it is also possible to determine accurately the amount of air present. Figure 22 shows the propellant and air concentrations in a cold filled hair lacquer. As can be seen, the air is present to an extent of only 2.5 per cent by volume. Figure 23 shows a chromatogram of the vapor phase of a pressure filled hair lacquer. Here for perhaps the first time is shown graphically the difference in air content of the vapor phase of a pressure filled and a cold filled aerosol product. You will note that this was run in duplicate to check reproducibility. The air found in the pressure filled sample is 9.6 per cent.

Trace determination of volatile materials in the air is also possible with the gas chromatograph.

Figure 24 shows the analysis of an air sample taken on a day when shaving cream was being pressure filled with a propellant mixture containing 60 per cent "Freon" 12 and 40 per cent "Freon" 114. It can be noted that the ratio of the gases found in the air comes very close to the liquid ratio of the gases being used. This analysis indicates that even with pressure filling, propellant vapors in concentrations up to several hundred parts per million can be present in the atmosphere.

From these chromatograms it is apparent that gas chromatography can be a powerful tool for aerosol fillers not only to improve present products but also for the research and development of new products. Gas chromatography is a new analytical tool that could not have been made more useful had it been specifically devised for use with aerosols.

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- (2) Hesse, G. and Tschachotin, B., "Adsorptions-analyse von Gasen und Dämpfen (Adsorption Analysis of Gases and Vapors)", *Naturwissenschaften*, 30, 387-92 (1942).
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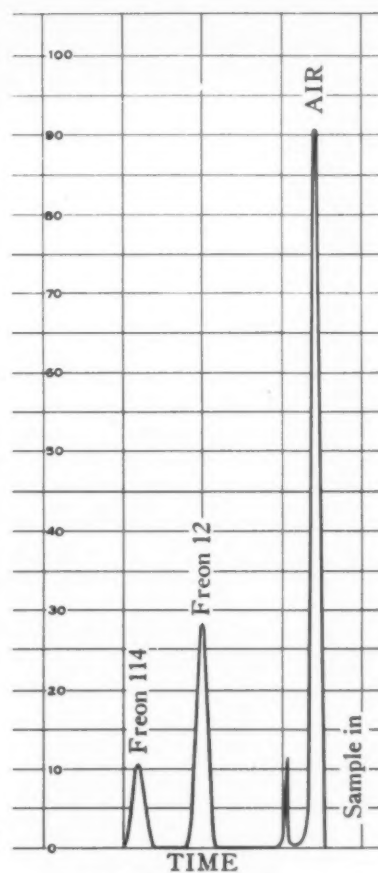
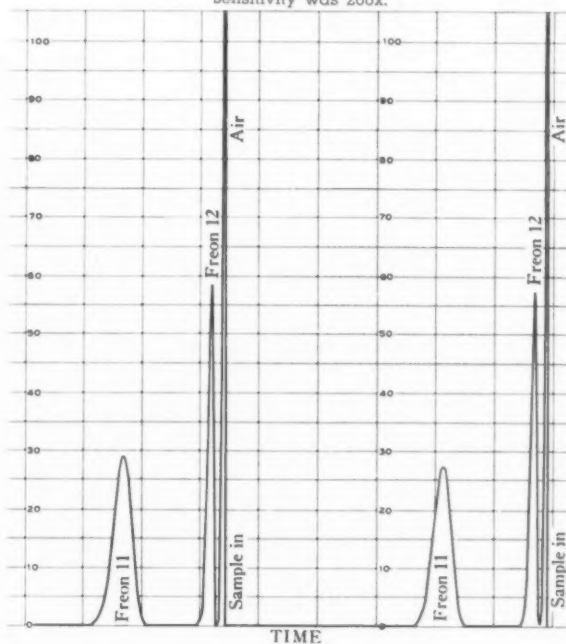


Figure 24. Analysis of air sample on day when shave cream was being pressure filled. Propellant mixture contains 60% "Freon" 12 and 40% "Freon" 114. The analysis shows 1400 ppm "Freon" 11 and 500 ppm "Freon" 114. The sample was a 10 cc. of air, and the sensitivity was 1x for both "Freon" 114 and "Freon" 12. Air sensitivity was 200x.

Figure 23. Chromatogram of vapor pressure of a pressure filled hair lacquer. Air was 9.6% by volume. Sensitivity of air was 1x, "Freon" 12 was 5x and "Freon" 11, 1x.



## CSMA Meeting (From Page 99)

ionic Surfactants by Ion Exchange Technique," by Lloyd E. Weeks and Martin E. Ginn, Monsanto Chemical Co., central research department, Dayton, O.

The Waxes and Floor Finishes Division will be addressed by its chairman, H. J. Mellan, Durez Plastics Division of Hooker Electrochemical Co., North Tonawanda, N. Y. Bayard S. Johnson, Franklin Research Co., Philadelphia, will present the report of the nominating committee, to be followed by election of the administrative committee. The following papers will be read in this session: "Building and Operating a Test Floor for Wax Evaluation," by Daniel Schoenholz of Foster D. Snell, Inc., New York; "Performance of Morpholine in Floor Polish—Rate of Development of Water Resistance," by S. M. Livengood and J. D. Bleistein, Mellon Institute, Pittsburgh, Pa.; "Concrete Floor Sealers," by Harold V. Schmidt, Federal Varnish Division, Chicago; and "Recent Developments in Emulsifiable Polyethylene," by R. E. Clark, Semet-Solvay Petrochemicals Division, Allied Chemical & Dye Corp., New York. Donal E. Whyte, S. C. Johnson & Son, Inc., Racine, Wis., will present the report of the division's scientific committee.

The concurrent sessions of the four divisions will be followed by luncheon at 12:30, a general session and appointment of a nominating committee to select a slate of officers and members of the board of governors for 1958.

Tuesday afternoon, May 21, the Automotive Division will hold its opening session under the chairmanship of Harold G. Lederer, R. M. Hollingshead Corp., Camden, N. J. W. A. Hall, E. I. du Pont de Nemours & Co., will give the report of the nominating committee and the administrative committee will be elected. Mr. Lederer will act as moderator for a symposium on brake fluids. Papers to be presented include: "Meaning of the SAE 70R Specifications," by Donald H. Hanson of Hollingshead; "State Enforcement and Quality Control," by J. E. P. Darrell, State of Minnesota Department of Highways, St. Paul; "State Legislation and Trends," by Robert L. Ackerly of Cummings, Sellers, Reeves and Conner, Washington, D. C.; "Merchandising of SAE Fluids," by Joseph D. Ryan, Olin-Mathieson Chemical Corp., Baltimore; and "Manufacturing of Brake Fluids," by C. E. Allderdice, Jr., Bell Co., Chicago.

The Insecticide Division will meet under the chairmanship of Carlos Kampmeier, Rohm & Haas Co., Philadelphia. George W. Fiero of Esso Standard Oil Co., New York, will present the report of the nominating committee and the division administrative committee will be elected. No papers have yet been announced for this session.

Concurrently with these divisional meetings, a motion picture program is set for Tuesday afternoon. The day's events conclude with open house parties in the suites of supplier members.

A general session will occupy the morning of Wednesday, May 22, to be followed by the general luncheon. Speakers are yet to be announced.

On Wednesday afternoon, May 22, the Aerosol and the Insecticide Divisions will hold a joint 10th anniversary symposium. The following papers will be presented: "Aerosol Containers—1947, Present and Future," by Jack Heinen, Continental Can Co., Chicago; "Aerosol Propellants—1947, Present and Future," by Winston H. Reed, Reed Laboratories, Huntington, Conn.; "Aerosol Valves—1947, Present and Future," by S. Jack Campbell, Continental Filling Corp., Danville, Ill.; "Aerosol Filling—1947, Present and Future," by Russell P. McGhie, Colgate-Palmolive Co., New York; "Aerosol Marketing—1947, Present and Future," by Stewart Watson, McCann-

Erickson Advertising Agency, New York; "Customer Viewpoint Toward Aerosols—1947, Present and Future," by a speaker from Good Housekeeping Institute, New York; and "Insecticide Formulas—1947, Present and Future," by R. A. Fulton, U. S. Department of Agriculture, Entomological Research Branch, Beltsville, Md.

Concurrently with the above symposium a joint session will be held by the Automotive and the Waxes and Floor Finishes Divisions for which the following papers have so far been tentatively announced: "Measuring Shock Resistance of Paste Wax," by Francis E. Chapman, Dean R. Zimmerman and Paul D. Brusko, S. C. Johnson & Son, Inc., Racine, Wis.; and "Fluid Mixing in Chemical Specialties Manufacturing," by James Y. Oldshue, Mixing Equipment Co., Rochester, N. Y.

The Soaps, Detergents and Sanitary Chemical Products Division has planned an informal panel discussion for Wednesday afternoon on "Developing Markets for Detergent Materials in the Soap and Specialties Industry." Carl Pacifico of American Alcolac Corp., New York, will act as moderator. Panelists will be: John Bahlburg, Wyandotte Chemicals Corp.; John A. Quinn, Theobald Industries, Kearny, N. J.; D. H. Terry, Bon Ami Co., New York; and Robert F. Way, Colgate-Palmolive Co.

No program has yet been announced for the Wednesday afternoon session of the Disinfectants and Sanitizers Division.

The formal meetings and sessions will be concluded on Wednesday evening, May 22, by a cocktail party and banquet.

—★—

### Shulton Appoints Diehl

Edwin Diehl has been appointed public relations manager of Shulton, Inc., Clifton, N. J., it was announced recently by George L. Schultz, president. Prior to joining Shulton, Mr. Diehl served as public relations director for P. Lorillard Co.



**Table 12. Slip Measurements of Waxed Tiles Using the James Machine (77°F. and 50% Relative Humidity) (Wax A)**

	TOTL	TOTAT	Rubber	Vinyl
	0.70	0.64	0.50	0.57
	0.65	0.56	0.58	0.57
	0.62	0.60	0.68	0.50
	0.64	0.60	0.70	0.48
	0.67	0.60	0.68	0.55
	0.70	0.60	0.68	0.53
	0.65	0.61	0.69	0.49
	0.64	0.67	0.66	0.48
	0.66	0.59	0.67	0.55
	0.63	0.57	0.65	0.53
Total .....	6.56	6.04	6.49	5.25
Average .....	0.656	0.604	0.649	0.525
Standard Deviation ..	±0.0272	±0.0317	±0.0621	±0.0354
Range .....	0.08	0.11	0.20	0.09

**Table 13. Slip Measurements of Waxed Tiles Using the James Machine (77°F. and 50% Relative Humidity) (Wax B)**

	TOTL	TOTAT	Rubber	Vinyl
	0.67	0.67	0.70	0.62
	0.62	0.62	0.76	0.56
	0.70	0.65	0.71	0.63
	0.78	0.67	0.71	0.61
	0.68	0.70	0.65	0.58
	0.72	0.62	0.63	0.60
	0.61	0.58	0.70	0.62
	0.70	0.58	0.72	0.54
	0.72	0.70	0.72	0.54
	0.73	0.58	0.71	0.55
Total .....	6.93	6.37	7.01	5.85
Average .....	0.693	0.637	0.701	0.585
Standard Deviation ..	±0.0510	±0.0479	±0.0367	±0.0354
Range .....	0.17	0.12	0.13	0.09

## New Hercules Plant

Hercules Powder Co., Wilmington, Del., has begun full-scale production at its new Savannah, Ga., tall oil fractionation plant, it was announced recently. The new installation, which began initial operation about the first of the year, will manufacture resins, purified fatty acids and other related crude oil products. The Savannah plant is the second tall oil unit to be built by Hercules in the past two years. Last year the company opened a tall oil plant at Franklin, Va.

## Slip Testing

(From Page 80)

once in 100 times. Therefore, in order to accept the fact that two averages, between machines are significantly different, they should differ by 0.05 units or more. Referring back to Table 14, it will be seen that all the paired averages, with the exception of unwaxed TOTL, are within experimental variation.

## Variation of Results

As with any new method or test equipment, the experimenter finds it helpful to know in advance the magnitude of normal deviations, and the significance of differences between averages. Accordingly, an analysis of the accumulated data was performed to determine the parameters of range, standard deviation and significance of results.

The maximum range of slip

**Table 14. Comparison of Coefficients of Friction Unwaxed Surfaces**

	Dura Slip (1) Resistance Tester	James Machine
Vinyl .....	0.685	0.673
TOTAT .....	0.708	0.745
TOTL .....	0.712	0.779
Rubber .....	0.874	0.914
Surfaces Treated with Wax A		
Vinyl .....	0.505	0.525
TOTAT .....	0.608	0.604
TOTL .....	0.653	0.656
Rubber .....	0.664	0.649
Surfaces Treated with Wax B		
Vinyl .....	0.615	0.585
TOTAT .....	0.644	0.637
TOTL .....	0.706	0.693
Rubber .....	0.729	0.701

(1) Tests run at 180 Powerstat Setting.

angles in terms of Dura Degrees that can be expected to occur for sets of 10 replicates is 9° while the average range will be about 5°.

The standard deviation of the individual measurements in terms of Dura Degrees equals  $\pm 2.788$  and in terms of coefficient of friction the pooled standard deviation is  $\pm 0.0372$ .

If the results or averages are converted from Dura Degrees to coefficient of friction, Table 15 can

**Table 15. Minimum Differences Required for Results to Be Significant at the 99% Probability Level.**

No. of Measurements in Each Set of Averages	Required Minimum Difference Between Averages
6	0.068
8	0.055
10	0.048
12	0.043
14	0.039

be used to decide whether differences between average slip results are significantly different.

## Discussion:

The investigation into the use of the Dura Slip Resistance Tester has shown that the equipment is suitable for measuring static coefficients of friction in the range of 0.088 to 1.000. The results obtained therewith were within acceptable limits of precision for waxed and unwaxed surfaces and compared favorably with the James Machine, or Underwriter's type slip tester, results.

The Dura Slip Resistance Tester should be of special value to those engaged in routine determinations of coefficients of friction, in view of its speed of operation, automatic feature and use of easily-prepared test heels.

## References and Sources

- (1) Distributed by Dura Commodities Corp., 20 Vesey Street, New York.
- (2) Available from Armour & Co., Chicago, Ill.
- (3) Available from Minnesota Mining & Manufacturing Co., 900 Fauquier Avenue, St. Paul.
- (4) ASTM Committee D-21 "Proposed Method of Test for Measuring the Static Coefficient of Friction of Waxed Floor Surfaces", *ASTM Bulletin* No. 196, Feb. 1954, pp. 20-21.
- (5) Available from the Chemical Specialties Manufacturers Assn., 50 E. 41 St., New York 17, N. Y.
- (6) Available from the Chemical Specialties Manufacturers Assn., 50 E. 41 St., New York 17, N. Y.
- (7) Available from Robbins Floor Product, Inc., Tuscumbia, Ala.
- (8) Available from Congoleum Nairn, Inc., Kearny, N. J.
- (9) Youden, W. J., "Statistical Methods for Chemists", John Wiley & Sons, Inc. 1951.



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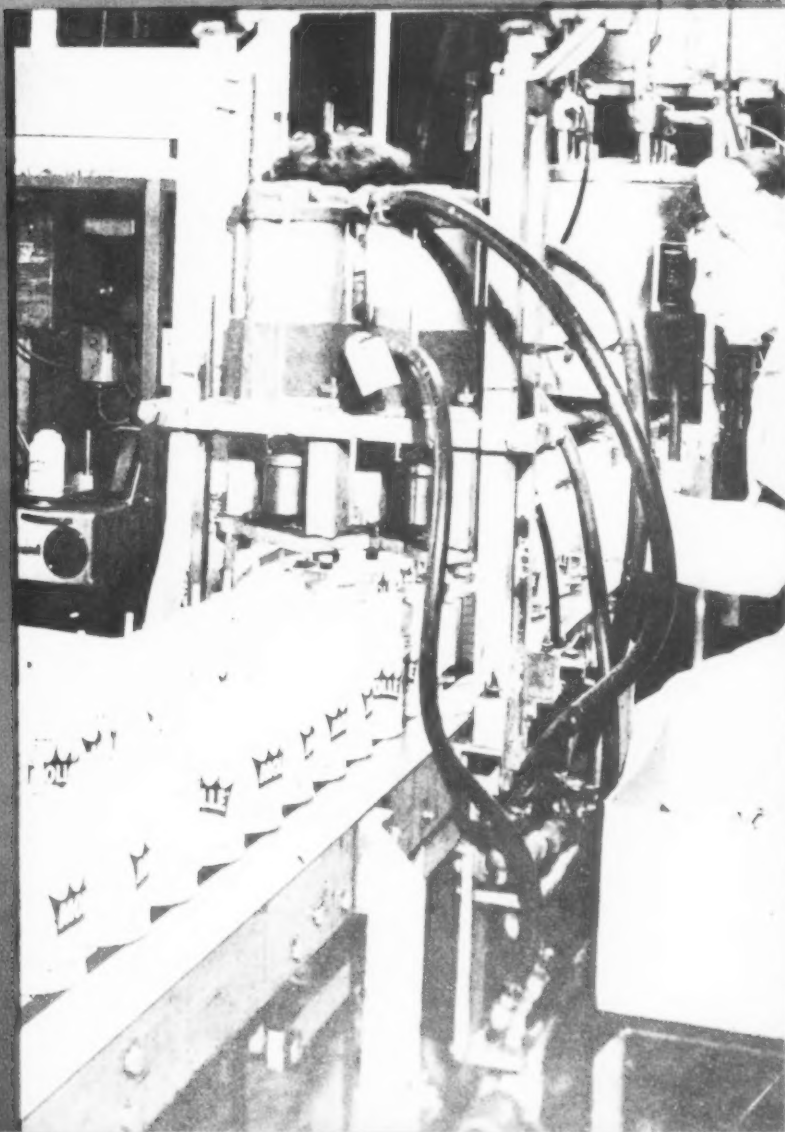
# Packaging...

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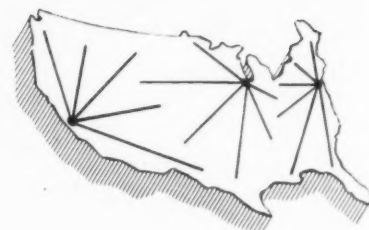
It may be a cosmetic, pharmaceutical, chemical, food or specialty product. It may be a powder, liquid, or cream. It may be one of the regular products in your line. Perhaps it is an undeveloped formula or the mere "germ of an idea" in some person's mind. But the odds are that some product that is today unspectacular in its present package, may become one of tomorrow's fastest selling items when packaged as an *aerosol*.

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# Metered Detergent Container

**New folding paper carton for powdered home laundry products has built-in unit for measuring precise amounts of product**

**By Patrick A. Toensmeier**

Research Director  
New Haven Board & Carton Co.

**T**HE capacity to measure has generally been regarded as one of the yardsticks by which a civilization can be evaluated. Our particular culture, intimately absorbed with the mechanics of mass production and distribution, has been especially concerned with problems of measurement. The many advantages, both to manufacturers and consumers, of the accurate measurement of unit portions of free-flowing solids have recently been made commercially available through a development of United States Metered Container Corp., New York.

## What It Is

**T**HE U. S. Metered Container is a folding paper carton with an ingenious metering device made out of an integral part of the carton blank. Capable of being manufactured on standard folding carton production equipment, this construction can also be formed and loaded on standard equipment with no reduction in production line speeds. When the formed and loaded carton reaches the housewife, she has merely to open the flap on top of the carton, and the package is ready to dispense measured amounts of the contents.

This metering carton has been exhaustively tested, from several different standpoints, by Container Laboratories, Inc. of New York. Of prime concern in a carton of this type is the problem of dis-

persing accuracy. Quotations from the Container Laboratories report (copies of which are available from United States Metered Container Corp., 527 Madison Avenue, New York 22, N. Y.) provide perhaps the most impartial statement of the accuracy of this carton in dispensing unit portions of the contents. "The average measurements were 95.8 per cent accurate within any one carton and 98.4 per cent accurate from one carton to the next. It should be noted that, before evaluating the weights of the individual portions, the cartons had been subjected, in outer shipping

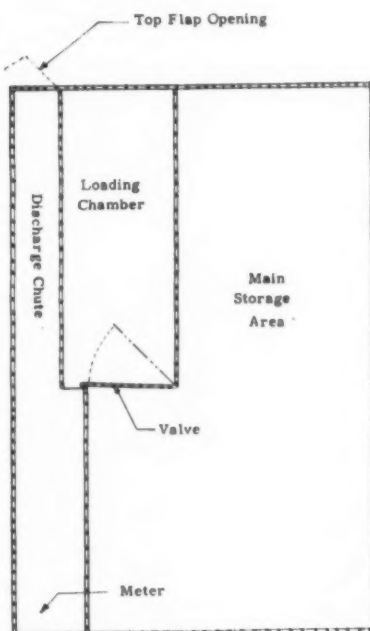
containers, to a cycle of tests simulating the normal hazards of handling and transportation."

In another part of the report, the following statement is made: "If operated properly, according to instructions given by U. S. Metered Container Corp., the accuracy of the dispensing device should satisfy even the most critical user for products of the type used in the performance of these tests (powdered synthetic detergent)."

Three other significant characteristics of the metered carton were also tested by Container Laboratories, in comparison with standard cartons for powdered synthetic detergents. These were the overall rigidity of the carton, its tendency to "belly" out at the side panels, and the paperboard used for the cartons in the comparative tests. With respect to rigidity in the top-to-bottom direction, especially important in meeting warehouse storage conditions, the cartons reinforced by the metering device were 28.8 per cent more rigid than the regular cartons. Compression resistance in the metered carton, when the load was applied to the center portion of the largest surface, was 70 per cent greater than the load sustained by regular cartons. In the side-to-side direction, compression resistance in the metered carton was 12.4 per cent lower.

"Bellying" tests demonstrated that the metered container

Figure 1



# Craftsmanship

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"bellied" approximately 34 per cent less than the standard detergent cartons after 10 minutes of vibration at 260 cycles per minute. The cartons were unrestrained during the vibration tests and the contents were allowed to settle readily.

Container Laboratories' analysis of the material used in the manufacture of the metered cartons, in comparison with the regular cartons, showed the metered cartons to be manufactured of paperboard which was lighter in weight and caliper than the paperboard from which the regular cartons were made. The bursting strength of the metered carton paperboard was also slightly lower than that of the regular cartons.

The net sum and substance of all of the various tests in this comparative evaluation of the metered container and a standard detergent carton is that the metered carton provides a highly accurate means of dispensing measured amounts of the package contents. The metering device greatly increases the rigidity or compression resistance of the carton and reduces its tendency to "belly" to a significant degree. The fact that these test results were obtained by using metered cartons, manufac-

tured from paperboard that was substantially lower in caliper, weight, and bursting strength than that used in the regular cartons strongly suggests that performance standards for the present regular detergent carton might well be maintained with a more economical paperboard, if the carton construction included the metering device.

#### How It Works

**T**HE metering device, incorporated in the carton structure, divides the interior of the carton into several distinct chambers. The schematic view shown in Fig. 1, illustrates these areas. There is a main storage chamber, where the greater bulk of the contents is located. Adjacent to this is a loading chamber. The flow pattern of the package contents is from the main storage area to the loading chamber, from which a unit load flows into the meter, and then out through the opening in the top of the carton. Access to the loader from the main storage area is through a one-way, flutter-type valve.

Fig. 2 shows the carton and contents as the housewife first receives it. Shipping vibration has

caused the contents to sift out of the upper part of the discharge chute. It should be noted here that the metering device does not displace any of the carton's interior volume.

The first pour from the carton empties the meter, permitting the contents of the loading chamber to escape into this area, when the carton is turned upright again. Subsequent pours simultaneously empty the meter and permit the entry of measured amounts of the contents into the loading chamber, as shown in Fig. 3. Each time the carton is turned upright, the weight of the contents in the loading chamber closes the valve and permits the measured amount remaining in this area to escape into the meter (Fig. 4). This process continues until the entire contents of the carton have been exhausted.

#### Merchandising Advantages

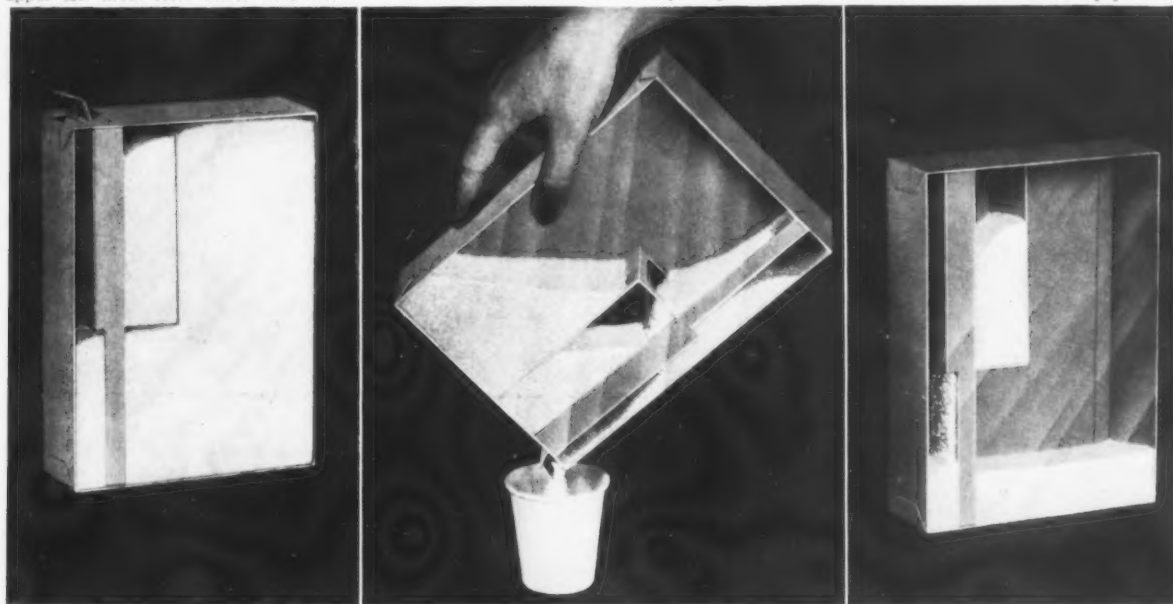
**T**HE immediate attraction that the metered container offers, from a merchandising standpoint, is novelty. Most women are attracted by something new. If they have small children, there is likely to be an additional incentive to make the purchase. The spectre of

(Turn to Page 137)

Figure 2 (left) metering blank and manner it is automatically erected in the carton. Shipping has caused contents to sift out of upper left area. Note meter does not re-

place volume. Figure 3 (center) loading area fills through a hinged valve simultaneously with discharge of contents. Material cannot fall out the opening from

which it was just loaded as the passage is blocked. Figure 4 (right) contents escape from loader through an opening in top of meter. Valve has been closed by powder.



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# Packaging NOTES

## Bradley Elects Britzke

Leonard A. Britzke has been elected president of Bradley Container Corp., Maynard, Mass., it



Leonard A. Britzke

was announced recently. Mr. Britzke had served as Bradley's vice-president and general manager since the firm was purchased last fall by American Can Co., New York. According to William C. Stolk, Canco president, who had been Bradley's chief executive for the same period, Mr. Britzke also was elected president of another Canco subsidiary, Pittsburgh Plastics Corp., West Pittsburgh, Pa.

Mr. Britzke has been associated with Canco since 1935. He worked in plants in St. Louis and Houston and in 1949 was assigned to the engineering department in New York. He became assistant general manager of engineering a year later, and at the time of his appointment to Bradley last September, was general manager.

## Crown Earnings Lower

Crown Cork & Seal, Inc., Baltimore recently reported an increase in sales and a decline in income and earnings in 1956. Net sales for the 12-month period ended December 31 totaled \$115,098,613 as compared with \$112,953,722 in the preceding year. Net income in 1956 amounted to \$380,982, equal to share earnings of 14 cents, as

compared with \$1,824,038 and \$1.05 a year earlier.

Russell Gowans, Crown president, attributed lower earnings to increased cost of production and reduced unit sales volume. Price increases, he said, were not sufficient to meet higher costs.

## Edwards in New Post

Lester R. Edwards has been named vice-president and general manager of National Container Corp., New York, it was announced recently. Mr. Edwards formerly was president of Northeastern Container Corp., a subsidiary of National.

## Cont'l Names Lawrence

C. E. Lawrence has been named Chicago district sales manager for the plastic container

division of Continental Can Co., New York, it was announced recently. In his new post, Mr. Lawrence will supervise sales of the firm's squeeze bottles, turret seal caps and rigid plastic containers. For the past 13 years, Mr. Lawrence has been associated with Crown Cork & Seal, Inc., Baltimore.

## Canco Names Van Vlack

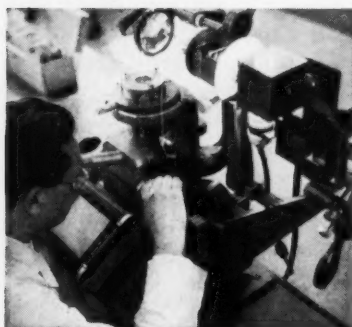
Wagner Van Vlack, formerly sales manager of the closing machine department of American Can Co., New York, has been appointed vice-president of the firm's newly-formed subsidiary, American Can International, Inc.

In his new assignment, Mr. Van Vlack will supervise export sales of the company's U.S. made containers and operation of technical assistance agreements with can manufacturers in foreign countries.

New 16-ounce "Featherweight" polyethylene bottle just announced by Northwestern Bottle Co., 3132 N. Broadway, St. Louis 7, Mo. The new bottle size is a companion of the 32-ounce unit introduced earlier, and shown at right in photograph. Among the advantages claimed for the new "unbreakable" bottle are lightness, inertness to "most" products in chemical industry, and lower cost than standard weight polyethylene plastic bottles. Unlike the 32-ounce bottle, the new unit may not be adapted to "T"-neck sponge attachment for toilet bowl cleaners and similar cleaning products.



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Modern cartons are developed only through systematic consideration of their opportunity to serve you in the retail store and retail warehouse as well as on your own filling line and in transit. Owens-Illinois is pioneering such developments.

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package that sells through  
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efficient salesman when it comes to convenience and product protection. The quality of the contents is maintained throughout many openings and closings. The housewife can readily see how much she has left.

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Whether it be a million and ten or just ten... Precision has or will develop the aerosol valve for your product. Our large quality control department assures you of the finest results along with the economy required for profitable sales.

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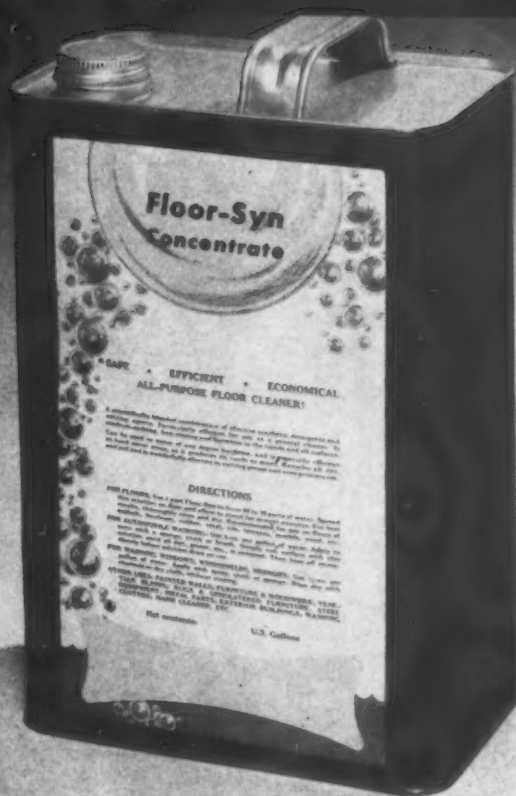


## *Precision Valve Corporation*

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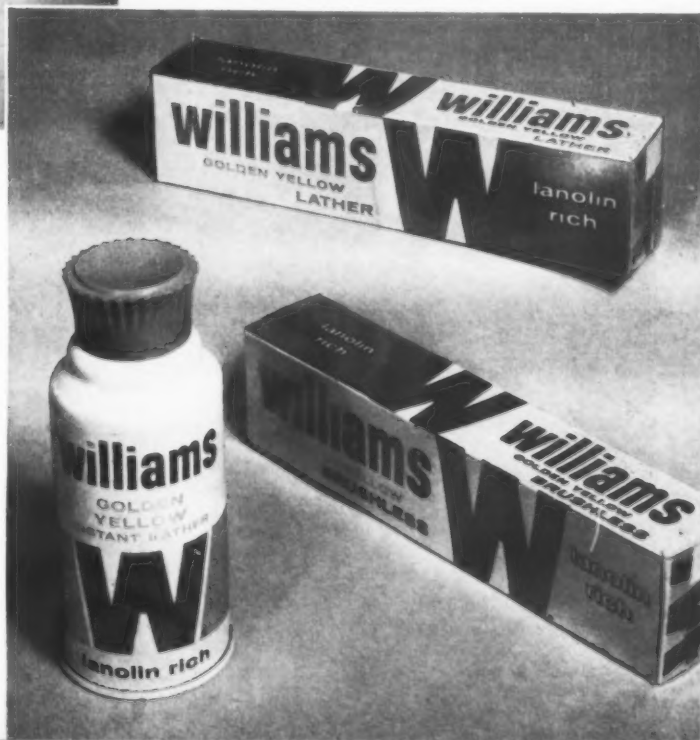
## what's new?

"Floor-Syn" concentrate, a general purpose cleaner, was introduced recently by Haag Laboratories, Inc., Blue Island, Ill. Medium-sudsing and free rinsing regardless of water hardness, the product was designed as general floor cleaner but is equally suitable for washing cars, glass and other surfaces.



Counter Display carton is Geigy Agricultural Chemicals Division new point of sales aid for "Sequestrene" metal chelates. Carton holds 24 four-ounce polyethylene bags of "Sequestrene" and 24 pamphlets built in pocket. Carton, bags and one pound canisters feature grey and black color scheme, in keeping with horticultural theme. Bag retail for 98 cents, canisters for \$2.75 each.

A new line of "Golden Yellow" shaving creams by J. B. Williams Co., Glastonbury Conn., includes shave lather in pressure can, and lather and brushless creams in collapsible tubes. Special concentrated lanolin ingredient imparts "Golden Yellow" color to products, underscored by gold foil packages. Creams retail nationally at 79 cents for aerosol, 60 cents for lather, and 55 cents for brushless shave.





O-Cedar Division of American-Marietta, Chicago, recently introduced "Foot-Note," a new self-polishing floor wax. High gloss, durability and easy removability are claimed for the wax which retails at \$1.59 a quart. Half gallon will cost \$2.59, and gallon size \$4.98.

A new metered valve aerosol applicator disperses measured mist to clear blocked nostrils. "Nasal Nozzle" was recently made available to marketing laboratories by Valve Corp. of America, Bridgeport, Conn.



"Ozium" air conditioner by Woodlets, Inc., Buffalo, N. Y., in new "personal size" one and one quarter ounce pressure container featuring meter valve, yields 500 individual sprays.

"Fiber Fresh" by Servicemaster (Wade, Wenger & Associates, Chicago) is a new carpet and upholstery cleaner incorporating an optical brightener and an antisoiling agent. Concentrate retails for \$1.95 a pint and \$2.95 a quart.



"B&G Krome Kleen," a polish for automobile chrome surfaces is being distributed in the Delaware area by McLean Enterprises, Delaware, O. Packaged in three ounce plastic coated paper container by Sealright Co., Fulton, N. Y., "Krome Kleen" retails for 50 cents.





DBA Products Co., Deerfield, Ill., recently introduced "Aero-San" pressure packaged deodorizer and sanitizer for sport shoes. De-

signed for use in rental shoe maintenance the product contains hexachlorophene as bacteriostatic and deodorant ingredients.

Renuzit's "Gentle" new concentrated liquid cleaner for upholstery, rugs, synthetic fabric by Renuzit Home Products Co., Philadelphia, in new white 32 ounce polyethylene squeeze can by Bradley Container Corp., Maynard, Mass.

"Insul-Ease" by Authority Laboratories Division of Bardahl Oil Co., St. Louis, Mo., is a one-action auto wax and cleaner, comes in eight ounce aluminum tube for easy application.



HOW YOU CAN

## PACKAGE FOR PROFIT

IN 1957

## In the cologne market

*survey data shows how growth aerosols  
point the way to volume sales*

Aerosol colognes have shown dramatic sales power since they first appeared in 1953. In two years they captured 36% of total domestic cologne sales. By 1967—based on survey findings and experience with similar aerosol products—aerosol colognes could have 75% market penetration.

Du Pont's new survey reveals aerosol colognes are preferred 3 to 1 over all other types of packaging combined, by women who try them. Here are some of the reasons why: easy and neat to use, doesn't evaporate, spill-proof package and lasting fragrance freshness.

*Yet only 26% of those interviewed had ever heard of colognes or toilet water in an aerosol, and only 12% had ever tried them. Imagine the big-volume, big-profit sales waiting for you when you capitalize on high consumer satisfaction with aerosol colognes spotlighted by this survey. Why not take advantage of this potential and promote aerosols?*

**SEND FOR YOUR FREE COPY** of Du Pont's survey report on the cologne market. Write E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division 134, Wilmington 98, Delaware.



"Fragrance promises to be new aerosol best seller," is the report from a New York City department-store cosmetic buyer. "Aerosol colognes are both functional and extremely attractive. A really bright potential for the future growth of cosmetics lies in the aerosol field."

### For colognes or any aerosol, package for profit with Du Pont Freon\* propellents

Effective spray patterns and odor stability for aerosol colognes can be provided by low pressure propellant systems using Du Pont "Freon". In fact, whatever your aerosol product, it will pay you to specify "Freon" propellents, because you get the benefits of Du Pont's fundamental aerosol research, marketing data, formulation and testing help, fast, dependable delivery of quality products. There's no extra charge for the extras you get when you use "Freon". For more information or assistance, write to E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Div. 134, Wilmington 98, Del.

\*Freon and combinations of Freon- or F- with numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon propellents.



# FREON<sup>®</sup> *propellents*

BETTER THINGS FOR BETTER LIVING . THROUGH CHEMISTRY

### O-I Sales Higher

Owens-Illinois Glass Co., Toledo, O., recently reported an increase in sales and a decline in income and earnings during 1956. According to J. P. Levis, chairman, net sales increased in 1956 to \$495,974,236 from \$469,162,196, in the previous year. Net income, however, fell to \$35,349,218, equal to share earnings of \$4.49, from \$35,721,142 and \$4.54, in 1955.

### Canco Appoints Dowling

F. J. Dowling has been appointed sales manager of the central division of American Can Co., New York, it was announced recently. Mr. Dowling formerly was assistant manager of central division sales with headquarters in Chicago.

### Gair Reassigns Prokupek

George E. Prokupek has been appointed assistant to William H. Caddoo, vice-president in charge of boxboard operations of Robert Gair Division of Continental Can Co., New York, it was announced recently. Mr. Prokupek was formerly superintendent of Gair's Tonawanda, N. Y., plant. He joined Gair in 1947 and previously had served as assistant superintendent of the company's Haverhill boxboard mill, Haverhill, Mass. Mr. Prokupek will be succeeded by Everett Raymond, who was formerly engaged in manufacturing operations at the Haverhill unit. Mr. Raymond joined Gair in 1935.

Everett Raymond



**Bracon**

... SQUEEZE-TO-USE PACKAGING



## SALES SOAR...when package travels!

Give a lady a hand cream that soothes, softens and is convenient to carry and she'll make it her constant companion. She gets all this with Northam Warren's new Cutex Hand Cream now packaged in a lightweight plastic tube. BRACON's new internal coatings inside the polyethylene tubes keep the sheer lanolin, silicones and essential oil formula safe and always ready for application.

Whatever your product... cream, liquid or powder... there's a BRACON container to increase its merchandising appeal. Striking multi-color printing attracts buyer's attention — and they buy again because BRACON tubes, bottles and squeeze cans *will not* dent, tear, corrode, crack, crush, break or leak. BRACON tubes *never* roll up and this whole line of rugged, yet pliable, packaging offers unique point-of-sale opportunities.

Would your sales soar... your markets expand, if your product enjoyed *all day use*? Get all the details on BRACON packaging from your Bradley representative or write:



### BRADLEY CONTAINER CORPORATION

Maynard, Mass. — New York, Chicago, Los Angeles, Toronto

# Which of Continental's five "poly" nozzle, non-drip cans is designed for your liquid detergent?

Take a good look at Continental's exclusive line of five Fluid Flow cans—and you'll find a container that's made-to-order for your liquid detergent. Every one of these rugged containers gives you all these big selling features:

**EVEN POURING, NO DRIPPING**—Threaded polyethylene nozzle permits free flow . . . provides exact, dripless cutoff when pour is completed.

**WRAP AROUND LITHOGRAPHY**—Solderless construction frees every square inch of outside surface for colorful decoration—even domes and tops.

**LASTING BEAUTY**—Resistant varnish prevents marring of lithography . . . protects your sales message from the time it leaves your plant until it's in the hands of the consumer.

**TOP PRODUCT PROTECTION**—Newly-developed enamel linings prevent raw metal from touching your liquid detergent.

Put Continental's full line of Fluid Flow cans to work for you. Call soon.



Eastern Division: 100 E. 42nd St., New York 17  
Central Division: 135 So. La Salle St., Chicago 3  
Pacific Division: Russ Building, San Francisco 4



## OF INTEREST TO MAKERS OF LIQUID WAX, STARCH AND OTHER PRODUCTS

After extensive tests at Continental's Research and Development Center, Fluid Flow cans—originally developed for liquid detergents—are now available for a number of other products. Some of these include:

Liquid Wax (water base)	Liquid Soaps	Liquid Starch
Liquid Car Wash	Liquid polish (water base)	
Water Base Cleaners	Liquid Rug and Upholstery Cleaners	

For more information on how Fluid Flow cans can benefit your product, call your nearest Continental representative.



## NEW Trade Marks

**T**HE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12(a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the *Gazette*. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of \$25 must accompany notice of opposition.

**Miracle**—This for polish for use on metals, floors and enameled surfaces. Filed Sept. 7, 1956 by Miracle Chemicals, Inc., Grand Forks, N. D. Claims use since Jan. 18, 1941.

**Aquaness**—This for surface active agents for industrial use. Filed Mar. 27, 1956 by Atlas Powder Co., Wilmington, Del. Claims use since Oct. 7, 1950.

**Calnox**—This for surface active agents for industrial use. Filed Mar. 27, 1956 by Atlas Powder Co., Wilmington, Del. Claims use since Apr. 21, 1952.

**Cronox**—This for surface active agents for industrial use. Filed Mar. 27, 1956 by Atlas Powder Co., Wilmington, Del. Claims use since July 31, 1952.

**Martin Senour**—This for vegetable oil soap. Filed Mar. 12, 1956 by Martin-Senour Co., Chicago. Claims use since the year of 1928.

**Colga-Matic**—This for detergent for use in home dishwashing machines. Filed May 31, 1956 by Colgate-Palmolive Co., New York. Claims use since Apr. 17, 1956.

**Applause**—This for soap and shampoo. Filed Nov. 22, 1955 by Colgate-Palmolive Co., New York. Claims use since Nov. 22, 1955.

**Sure X**—This for paint and varnish removers. Filed June 25, 1956 by Schalk Chemical Co., Los Angeles. Claims use since May 11, 1956.

**Actusol**—This for solvent detergent for cleaning metal. Filed Aug. 31, 1956 by DuBois, Inc., Cincinnati. Claims use since Nov. 1, 1936.

**Velvet Blend**—This for shampoo. Filed Sept. 5, 1956 by Procter & Gamble Co., Cincinnati. Claims use since June 27, 1956.

**B-W**—This for combined cleaner and polish for enameled surfaces. Filed Jan. 29, 1956 by Borg-Warner Corp., Chicago. Claims use since Dec. 15, 1955.

**J-Wax**—This for auto paste wax having cleaning characteristics. Filed Jan. 31, 1956 by S. C. Johnson & Son, Inc., Racine, Wis. Claims use since Nov. 4, 1955.

**Copper-Glo**—This for a self-acting polish and cleanser for copper or brass utensils. Filed May 2, 1956 by Burnshine Products Co., Skokie, Ill. Claims use since Feb. 19, 1951.

**Heavy Weight**—This for shaving cream. Filed Sept. 12, 1956 by Carter Products, Inc., New York.

Claims use since July 17, 1956.

**Rug-A-Tone**—This for cleaner for rugs, suede material, upholstery, leather and plastics. Filed May 14, 1956 by Rug-A-Tone Co., Reading, Pa. Claims use since June 9, 1955.

**Revivex**—This for shampoo. Filed Sept. 7, 1956 by Helene Curtis Industries, Inc., Chicago. Claims use since Aug. 9, 1954.

**Aqua-Shine**—This for polish for automobiles and glass, paint and chrome surfaces. Filed July 19, 1956 by Aqua-Shine Corp., Denver, Colo. Claims use since about Mar. 15, 1956.

**Wow**—This for liquid wax for automobile bodies. Filed Aug. 2, 1956 by Mary Carter Paint Factories, Tampa, Fla. Claims use since July 16, 1956.

**Richard's**—This for cleaner and polish for floors, furniture and fixtures. Filed Aug. 3, 1956 by Anthony H. Richard doing business as Richard's Floor Surfacing & Coverage Co., Alexandria, La. Claims use since July 2, 1956.

**Foot-Note**—This for self-polishing wax. Filed Aug. 7, 1956 by American-Marietta Co. doing business as O-Cedar Division of American-Marietta Co., Chicago. Claims use since July 2, 1956.

**Ad-A-Luster**—This for furniture and leather polish. Filed Aug. 8, 1956 by James V. Credendino doing business as Ad-A-Luster Products Co., Mount Vernon, N. Y. Claims use since Sept. 1951.

**Mikart**—This for general purpose cleaning and polishing compound. Filed Aug. 8, 1956 by Mikart Co., Webster City, Ia. Claims use since Apr. 30, 1956.

**Antiqwax**—This for polishing wax. Filed Aug. 10, 1956 by Frank Partridge, Inc., New York, now by change of name F. Partridge & Sons, Inc. Claims use since Aug. 1, 1950.

**Gallosan**—This for bacterial composition for pulp and paper. Filed Mar. 14, 1955 by Gallowhur Chemical Corp., Ossining, N. Y. Claims use since about May 14, 1953.

**Distinguished Service**—This for shave cream. Filed July 19, 1956 by Colgate-Palmolive Co., New York. Claims use since Nov. 22, 1955.

**Dufine**—This for liquid cleaner for cleaning upholstery, rugs, lamp shades and like articles. Filed Aug. 22, 1956 by Donal Sales Co., Detroit. Claims use since Feb. 1, 1956.

**Dynamo**—This for liquid cleaner, cleanser and detergent. Filed Aug. 23, 1956 by Colgate-Palmolive Co., New York. Claims use since June 28, 1956.

**Burst**—This for sudsing cleaner, cleanser and detergent. Filed Aug. 23, 1956 by Colgate-Palmolive Co., New York. Claims use since July 6, 1956.

**Forest Cloud**—This for shampoo. Filed Aug. 23, 1956 by Martha Sparks, Denver, Colo. Claims use since June 9, 1956.

**Wool Brite**—This for household detergents. Filed Oct. 30, 1956 by Household Research Corp. of America doing business as Household Research

Corp., Cambridge, Mass. Claims use since Oct. 25, 1955.

**Lix-Rust**—This for metal polish and rust remover. Filed May 17, 1956 by Merit Manufacturing Co., Akron, O. Claims use since on or about Apr. 10, 1940.

**Waxtra**—This for liquid floor polish. Filed Aug. 17, 1956 by S. C. Johnson & Son, Inc., Racine, Wis. Claims use since June 18, 1956.

**Zingo**—This for liquid automobile and furniture wax. Filed Aug. 20, 1956 by Stephen L. Mudd doing business as Ezy Products, Taylor Center, Mich. Claims use since Jan. 2, 1955.

**Safe-T-Sheen**—This for floor polish. Filed Aug. 30, 1956 by J. I. Holcomb Manufacturing Co., Indianapolis. Claims use since July 11, 1956.

**Bid**—This for soap. Filed Dec. 22, 1955 by Armour and Co., Chicago. Claims use since Nov. 4, 1955.

**CFS**—This for skin soap. Filed Apr. 10, 1956 by Clerfact Corp., Providence, R. I. Claims use since Dec. 6, 1954.

**Arpege**—This for toilet soap. Filed June 7, 1956 by Lanvin-Parfums, Inc., New York. Claims use since Mar. 7, 1956.

**Deoxidine**—This for liquid rust remover and degreaser. Filed June 18, 1956 by American Chemical Paint Co., Ambler, Pa. Claims use since Sept. 1, 1914.

**Rid-U**—This for liquid and powdered insecticides, rodenticides and stock sprays. Filed Feb. 15, 1956 by H. V. Smith Co., St. Paul, Minn. Claims use since Nov. 1, 1920.

**Trichlor-O-Cide**—This for powdered bactericide for household or industrial use. Filed Nov. 14, 1955 by Klenzade Products, Inc., Beloit, Wis. Claims use since Nov. 1, 1955.

**Sandopan**—This for emulsifiers, dispersing and other surface active agents. Filed June 5, 1956 by Sandoz Chemical Works, Inc., New York. Claims use since 1930.

**Spotfume**—This for fumigant for control of insects. Filed June 28, 1956 by E. H. Leitte Co., Minneapolis. Claims use since about April, 1953.

**Mallards**—This for washing fluid for use as bleach, deodorant and disinfectant. Filed June 29, 1956 by John Grask, McKeesport, Pa. Claims use since Nov. 30, 1950.

**Hycon**—This for dry bleaching compound. Filed Sept. 4, 1956 by Beach Soap Co., Lawrence, Mass. Claims use since Dec. 12, 1955.

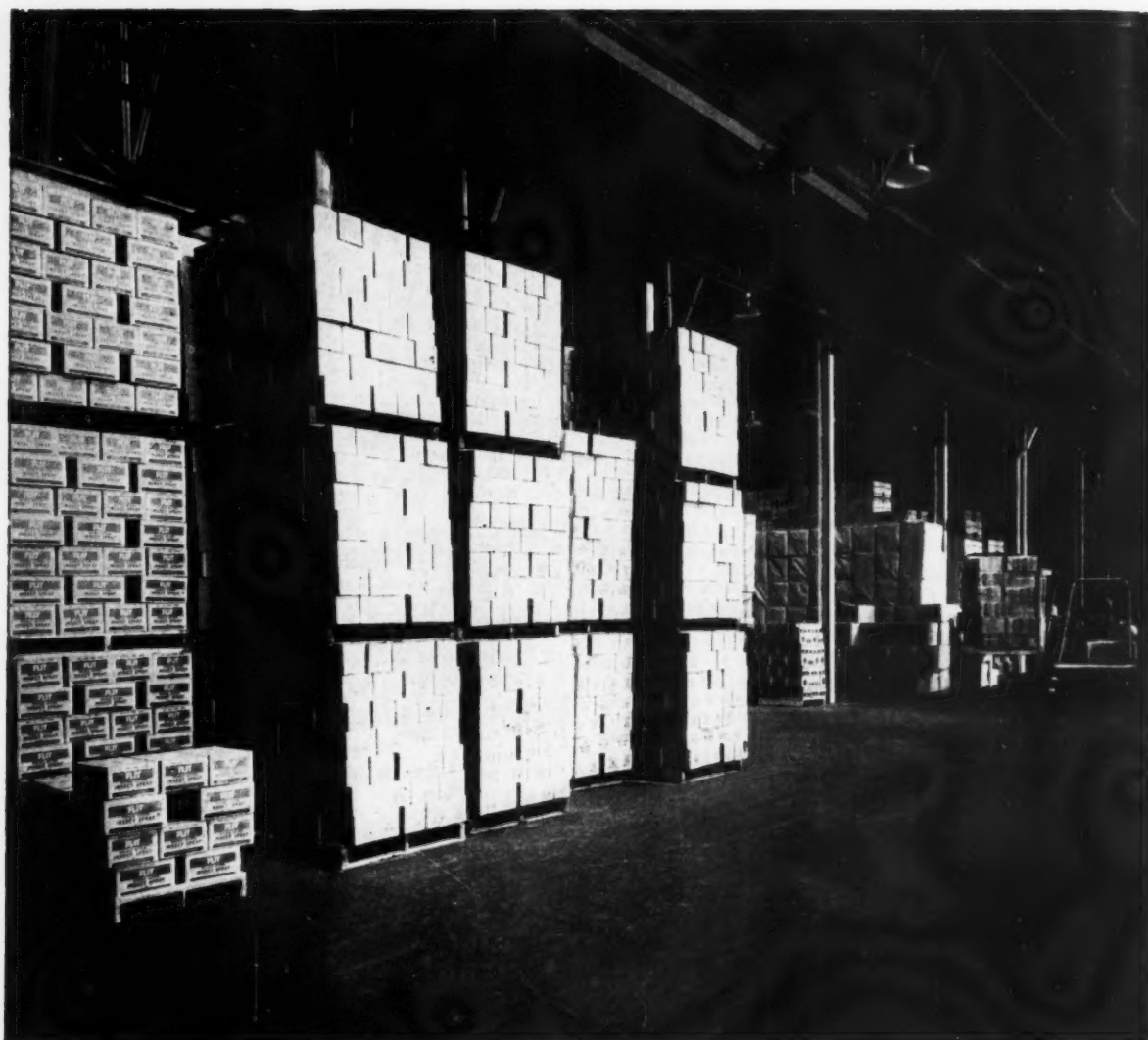
**Fire-No-More**—This for aerosol fire extinguishers. Filed Apr. 4, 1956 by Self-Ease Units, Inc., New York. Claims use since June 22, 1955.

**Carac**—This for insecticides, fungicides, weed killers, and animal repellents. Filed Apr. 10, 1956 by Carac Corp., Freeport, N. Y. Claims use since July, 1953.

**Bonafide**—This for hydraulic brake fluid. Filed June 12, 1956 by Prairie States Oil and Grease Co., Danville, Ill. Claims use since May 29, 1956.

**Vaypate**—This for insecticide. Filed June 25, 1956 by Walter Ratner doing business The Grant Co., Chicago. Claims use since June 16, 1956.

**Star**—This for rodenticides and insecticides. Filed Dec. 29, 1954 by Master Laboratories, Beaver Falls, Pa. Claims use since 1950.



## Our Plant . . . *Your Warehouse*

Besides ample facilities for handling your bulk ingredients, we have extensive warehousing space for the storage of your products after packaging. When it's time to ship, our personnel and equipment are geared to move large or small orders in a hurry . . . and we're glad to handle drop shipping. We

have direct railroad sidings and trucking service at our door. As a result, our plant can serve as *your warehouse* . . . a central distributing point . . . saving time and cutting costs. For details about our complete services in contract filling (liquid, pressurized or aerosol) write, 'phone or wire . . .

**PETERSON**  
*Filling and Packaging Co.*   
 HEGELER LANE • DANVILLE, ILLINOIS

## PRESSURE PACKAGING

### Schlossman in New Post

Aerosol Research Co., Forest Park, Ill., recently announced the appointment of Jack R. Schlossman



Jack R. Schlossman

as eastern sales manager. Mr. Schlossman will headquarter at the firm's New York office, which is located at 550 Fifth Ave. Mr. Schlossman previously was associated with Pesticide Advisory Service, New York. Prior to that, he was director of the sales-service unit of the contract packaging division of Connecticut Chemical Research Corp., Bridgeport. Before joining Connecticut Chemical in 1954, he served with the purchasing office of the U.S. Navy as agent in charge of procuring aerosol insecticides for the armed forces.

### Aerosol Nasal Applicator

A new aerosol applicator designed for spraying antihistamines, antibiotics, ephedrine and other drugs into the nasal passages, was developed recently by Valve Corp. of America, Bridgeport, Conn. Featuring a metered valve for exact dosage, the device is claimed to be the first of this type in the medical field. The new aerosol applicator is called "Nasal Nozzle" and consists of a two piece dispensing unit, which is shaped for dispersal by

finger-tip pressure. Further information may be obtained from the company, 1720 Fairfield Ave., Bridgeport, Conn. (See photo on page 126.)

### YPO Elects Shepherd

H. R. Shepherd, president of Aerosol Techniques, Inc., Bridgeport, Conn., has been elected to membership in the Young Presidents Organization, it was announced recently. The group consists of men and women who become presidents of their companies before they are 40 years old, and whose firms have an annual revenue of at least one million dollars and a minimum of 50 employees.

Mr. Shepherd, who is 36, was associated with Bridgeport Brass Co. and was vice-president in charge of research and development for Connecticut Chemical Research Corp., Bridgeport, prior to founding Aerosol Techniques in 1955. He also formerly was chairman of the aerosol division of the Chemical Specialties Manufacturers Association, New York.

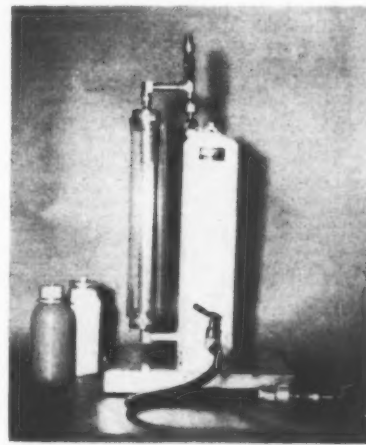
### Propellant Transfer Unit

Builder's Sheet Metal Works, Inc., 108 Wooster St., New York, has announced a new experimental size liquid transfer apparatus. According to William Scheck, vice-president, the new device can be used for transferring "Freons," "Genetrons," methyl chloride, sulfur dioxide, methyl bromide and other aerosol propellants under pressure to other containers in visibly measured amounts.

Consisting of a steel cylinder with a visible level gauge attached to the side, the apparatus will withstand pressures up to 200 pounds. Filling is accomplished by inserting a needle valve into the top of the aerosol valve and opening a release

located at the bottom of the apparatus container. Exact amounts may be metered by use of the gauge. Available with either a steel or stainless steel tank, a separate aluminum carrying case and cover is also obtainable at extra cost. A pressure valve may be fitted to the container at extra cost.

Mr. Scheck also announced



Propellant transfer unit

the availability of a special screw-on top to make experimental refillable glass aerosol containers. Consisting of a neck divided in two, in which the actual valve is inserted and placed in the bottle, the unit also has a knurled screw cap, with a hole in the center for the top of the aerosol valve. In operation, the valve is inserted in the bottle, the two halves of the neck are clamped over the valve and the threads of the bottle and the knurled screw top is then placed over the neck and tightened to make a pressure tight seal. Price includes a set of six valves, a two ounce plastic coated bottle and valves.

### Peterson in New Post

Peterson Filling & Packaging Co., Danville, Ill., recently announced appointment of John F. Peterson as manager of the firm's offices in that city. Prior to joining Peterson, Mr. Peterson had been employed for ten years in the material control division of International Harvester Co., Melrose Park, Ill.





## New General Electric leak detector checks each can quickly, automatically, safely

**HELPS ASSURE LONG SHELF LIFE, IMPROVES QUALITY CONTROL**

**Continuous production line testing** of pressurized cans is now possible with General Electric's new "fixed-head" leak detector. Designed for use by manufacturers of insecticides, hair lacquers, plastic sprays, shave lathers, shampoos, etc., the new unit accurately leak-checks every can on the line. This 100% leak test helps protect product quality. Complaints and returns caused by deterioration on dealer's shelves can be sizeably reduced.

**Automatic rejection of faulty cans** can be initiated by the new system. Manual testing of cans is eliminated and this new method is more sensitive and much faster than conventional "hot-water" methods.

**Tolerance limits for quality control** can be set and maintained through use of General Electric's new "leak-standard." Experience with your product will show the size leak which is permissible to maintain product

quality for the desired period of time. The "leak-standard" makes possible quantitative measurement of the leak and proper calibration of the detector to predetermined limits for precise quality control.

**For further information** about how to apply this new leak detection system, call your nearest General Electric Apparatus Sales Office or write to Section 585-56A, General Electric Company, Schenectady 5, N. Y.

**ACCURATE LEAK DETECTION MEANS PROFITS**

**GENERAL**  **ELECTRIC**



### Western Filling to Move

Western Filling Corp., Los Angeles, recently announced plans to move to new and larger quarters in a new building at 6423 Bandini Blvd., in that city. According to John L. Marana, president, the new building is now under construction and will be ready for occupancy about May 15. Western Filling presently is located at 4151 Bandini Blvd. The new plant contains 40,000 square feet of floor space and will be equipped with five aerosol filling lines, with production capacity of approximately 100,000 units per shift.

—★—

### Hoffman Aeratom Rep.

William A. Hoffman, Inc., New York, has been named exclusive sales representative in the United States for Aeratom, A.G., Rapperswil, Switzerland, it was announced recently. Aeratom manufactures a complete line of aerosol filling equipment. Further information may be obtained from Hoffman, 366 Broadway, New York 13.

—★—

### More Pressure Cans in '57

Sales of pressure containers in 1957 will amount to well over 400,000,000 units, according to C. S. Stephens, acting general manager of the non-foods container division of American Can Co., New York. This would represent an approximate 20 per cent increase over 1956 sales which totaled 350,000,000.

Mr. Stephens said that last year production of non-food pressure containers ranged about 280,000,000 units, while output of food containers was approximately 70,000,000. "Figures over the past few years reveal that the pressure can industry has been growing at a rate of between 20 and 30 per cent annually," he said. "Indications are that this growth will continue at an accelerated pace through 1957."

Pressure containers for specialties in the household and personal products field as well as for the food industry have shown the greatest growth according to Mr.

Stephens, who expressed special confidence in the future expansion of food aerosols. Novel and improved container/propellant combinations create a vast range of new applications for the pressure package in the food and drug field.

Mr. Stephens stated that all three of the company's manufacturing divisions are now being equipped to produce both the one inch cup-opening type and the one-piece top pressure container. "The one-piece top," he explained, is gaining popularity among packers and contract loaders because of its potential for economy and simplicity of construction. The value of these features will become apparent as the pressure packaging field becomes increasingly competitive."

—★—

### New Aerosol Chill Spray

A new aerosol chill spray designed to cool over-heated components of an electrical circuit which work properly only when cool but fail temporarily when overheated, was introduced recently by Arco Electronics, Inc., Los Angeles. Tradenamed "Jiffy Zero," the new spray employs du Pont's "Freon" refrigerant. Said to be non-corrosive and a non-conductor of electricity the product is harmless to all materials stable to low temperatures. Available in six ounce aerosol containers, the new product will be marketed by electrical parts distributors throughout the nation. Further information may be obtained from the company, 111 South Vermont Ave., Los Angeles 4.

—★—

### Kuhns Bridgeport Rep.

Kuhns Brokerage Co., Wichita, Kans., has been appointed sole sales representative in Kansas, for Bridgeport Brass Co., Bridgeport, Conn., it was announced recently by Walter E. Anderson, sales manager. Kuhns will handle Bridgeport's line of aerosol products which include insecticides, moth proofers, air refreshers and other specialties, in all counties west of and including Washington, Clay, Dickinson, Marion, Butler and Cowley.

### Risdon Sales Rise

Sales and income of Risdon Manufacturing Co., Naugatuck, Conn., showed a substantial increase during 1956, it was announced recently. Net sales for the year ended Dec. 30 totaled \$13,475,212, as compared with \$10,014,834, in 1955. Net income amounted to \$946,084, equal to share earnings of \$9.46. This compared with a net income of \$653,309, equal to share earnings of \$6.53, in 1955.

—★—

### Coating Glass Aerosols

Plastic coating is an indispensable safety feature for glass pressure packages according to an article in the February issue of *Soap, Perfumery and Cosmetics*, London. A series of photographically recorded experiments, described and evaluated in this article, show that every uncoated aerosol bottle containing sufficient pressure to produce an acceptable spray gave a loud explosion and a dangerous spread of glass fragments when dropped and broken in these tests. The range of thrown fragments depends upon the nature of the propellant, the quantity of the propellant relative to the solvent, the shape of the bottle, thickness of the glass and temperature of the contents. Any parallels drawn with the behavior of carbonated beverage bottles are shown to be invalid.

The experiments showed that an unprotected glass aerosol bottle with gauge pressure in the region of 13 p.s.i. will break practically every time when dropped from a height of six and one-half feet. Bottles with about two excess atmospheres (28 to 30 p.s.i.g.) when broken can throw fragments up to 40 feet, and lower pressure bottles (in the region of one excess atmosphere) any distance from 10 to 30 feet. A glass aerosol bottle dropped three feet away from a glass screen three feet high usually propels some of its fragments well over the top of this barrier. However, all these hazards are eliminated if the glass aerosol is adequately covered with a tight fitting



presents **Pres-O 500**



When so much depends on the RIGHT valve . . . why not be SURE — with Pres-O 500 shown above with different buttons to suit any pressurized product, spray and/or foam? • NEW VALVE ACTION controls flow from 5/10 gram per second — fine (for hair spray—colognes)—to 1 gram per second—regular (for insecticides—room fresheners)—and to 1½ grams per second—heavy (for paints—residuals) • NEW LOW DISPENSING RATE of fine button gives economy without affecting fast loading properties

PRESSURE FILLING with Pres-O Equipment gives high speed, economical and SAFE loading with any type propellant including propanes, butanes, alcohols and other combustible materials • Explosion-proof • No electrical controls located outside of machine • Handles containers automatically, including crimping and evacuating

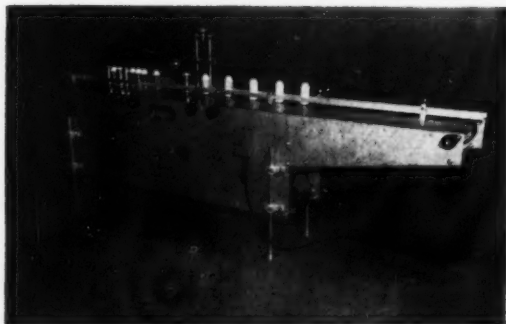
Write for full information

**OIL EQUIPMENT LABORATORIES, INC.**

600 PEARL STREET  
ELIZABETH, NEW JERSEY

### CODE DATING MACHINE FOR AEROSOL CANS

Will mark the top or bottom or both at the same time



PATS. PEND.

Kiwi® Coders Corporation announces a new power-driven machine for economically and automatically code dating the concave bottoms of pressurized cans or flat bottoms of other round containers. Can also be used as a work table for affixing parts to cans.

Send details on your specific marking problems.

Literature available on all types of applications

**Kiwi® Coders Corporation**

3804 N. Clark St. • Dept. S • Chicago 13, Ill.

## Automatic Filling

Compounding — Packaging Granular Products

CONTRACT  
PACKAGING  
•  
CUSTOM  
MANUFACTURING



Liquids, Semi-liquids, Creams, Pastes, Ointments in: Tubes (Metal and Plastic), Jars, Cans, Bottles (Glass and Plastic), Bags, Trans-Wrap Strip Packaging.

*Old Empire*



**MANUFACTURING CHEMISTS**

Mt. Prospect & Verona Aves., Newark 4, N. J.  
HUMboldt 4-2121 N.Y.C. WOrth 4-7870

plastic coating (0.025-0.03 inches thick) in the presence of a securely anchored valve. The plastic sheath will reduce fragility, and in case of breakage, no separate pieces of glass will penetrate the cover. Photographic evidence proves the efficacy of the plastic film as it does the hazards of the unprotected glass container.

#### ★ **VCA Appoints White**

Arthur M. White has been appointed quality control director of VCA, Inc., Bridgeport, Conn., it was announced recently. In his new post, Mr. White will be responsible for VCA's quality control program, which includes statistical quality control, inspection personnel and vendor rating. Prior to joining VCA, Mr. White served as quality control engineer for Underwood Corp., New York.

#### ★ **New Mono-Sol Brochure**

A brochure describing its new polyvinyl alcohol film, was issued recently by Mono-Sol Corp., Gary, Ind. Designed for packaging soap powders, detergents, insecticides and related specialties, the film is available in two types—a standard type and a second type made from low viscosity resin. The latter type is claimed to be soluble in water at 80 degrees or above. The film is also said to be durable, flexible and resistant to oils and solvents. Complete information may be obtained from the company, 407 County Line Rd., Gary, Ind.

#### ★ **Rothschild to Acepak**

Arthur A. Rothschild has been named president and managing director of Acepak, Inc., 7250 South Chicago Ave., Chicago 9, it was announced recently. Mr. Rothschild formerly was associated with Paket, Inc., Chicago. Contract packagers of liquids, pastes and powders, Acepak maintains a modern three-story plant at the South Chicago Ave. address. The structure contains 51,000 square feet of floor space and includes a five car rail loading dock, recessed truck docks and warehouse facilities. The plant

is under the direction of Robert Pitts. James D. DuMolin is sales manager.

#### ★ **Canco Names Bruce**

Walter B. Bruce has been named assistant manager of the sales promotion and marketing division of American Can Co., New York, it was announced recently by J. W. King, division manager. Prior to joining Canco, Mr. Bruce was associated with television station WABD, New York.

#### **Metered Container**

(From Page 119)

numerous eager children, with the urge for acquisition intensely aroused by television advertising, has haunted many a supermarket aisle, and this constant search for the newest and the latest has been the cause of many a shopping expedition discussion between parents and progeny. This is just as true of new gimmicks and gadgets as it is of the products themselves. The appeal of a package the contents of which are metered out in measured amounts is a powerful stimulus to buy, at least on the initial purchase.

Having stimulated the initial purchase on the basis of novelty and ingenuity, it is reasonable to assume that some of this interest in the package function as such would be replaced by a real appreciation of the convenience features of the metered container. These features are especially pertinent to home laundry products. Synthetic detergents for washing machine use should be measured in precise quantities, and the same is true of dry bleaches and starch. With standard laundry product cartons, the measuring cup is a constant companion to each use of the package. After each use, the cup must be cleaned and returned to its proper place. All of this is obviously inefficient and represents wasted time and motion. The modern housewife performs a great many specialized tasks. Convenience and

simplicity in performing these tasks are important to her, and she is willing to pay for them. It is this aspect of the metered container which stimulates repeat purchasing.

#### **Quantity Control by Maker**

**I**T is safe to say that any 10 people measuring a half cup of product for home use would provide 10 different quantities. It is also safe to say that these 10 measurements would fall into two groups; those that were over the half-cup quantity and those that were under. We are all familiar with the common philosophy which roughly states that if a little is good, a lot is better; and its converse, which is generally described as too much of a good thing.

The metered container eliminates these measurement differences, and places control of the quantity required for each use squarely in the hands of the manufacturer. The chronic "under-user" and the excessive "over-user" are restrained from permitting their temperaments to influence their measuring habits. The built-in quantity control provided by the metered container offers two outstanding advantages to the chemical specialties manufacturer. The performance of his product is not limited by the possibility that either too much or too little will be used, and his sales will not be retarded by a miserly use of the product. Forcing a correct amount of the carton contents for each use assures the best possible performance and a proper disposition of the product. Good product performance encourages repeat sales, and proper product disposition assures a definite level of sales frequency.

From both technical and merchandising standpoints, the U. S. Metered Container should prove to be an outstanding contribution to the packaging of soaps, detergents, dry bleaches and starch. It could be one of the major innovations in the design of folding paper cartons for the packaging of home laundry products.

# SAY IT WITH INDUSTRIAL ODORANTS



How can you *tell* your present customers you are doing everything possible to continue to give them the finest product that can be made? How can you *sell* your potential customer in the crowded, competitive market places of today?

One way to both tell and sell is by adding that extra touch that immediately marks your product outstanding . . . a pleasant fragrance! Industrial Odorants are compelling sales aids, important tools for the modern businessman with a merchandising point of view. If you manufacture . . .

PAINTS   POLISHES   INKS   LEATHER ITEMS   CLEANSERS  
DETERGENTS   RUBBER PRODUCTS   WAXES   LIQUID SOAPS  
BLEACHES   STARCH   INSECTICIDE SPRAYS   WAVE SOLUTIONS  
GLUE   PETROLEUM PRODUCTS   NAPHTHALENE PARA CRYSTALS  
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# Production...

**EQUIPMENT • MATERIALS • PROCESSING**

**Production Clinic**

**Soap Plant Observer**

**Products and Processes**

**New Patents**

**Book Reviews**

**Bulletins and Equipment**

*Mechanized filling takes over at the Parsons Ammonia Co. plant in Passaic, N. J. Using 20-spout automatic semi-vacuum rotary type gravity filler for bottling ammonia, equipment made by MRM Co., Brooklyn, eliminated problem of excessive foaming. See story on page 141 of this issue.*



*Broad Viscosity Range  
mixed in the New*

# HOUCHIN CRUTCHER

featuring  
VARIABLE SPEED DRIVE  
AND  
ADJUSTABLE DRAFT TUBE

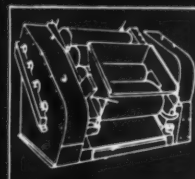


Exact shaft speed of this powerful new Houchin Crutcher can be precisely set and held by the simple hand wheel adjustment, which is coupled to a clear indicating dial. Speeds are infinitely variable between 23.3 and 93.0 R.P.M., and can be changed without interrupting Crutcher operation.

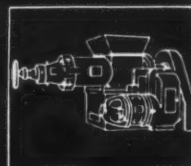
Flexibility of shaft speed makes this Crutcher efficient for mixing fluids of a broad density range, also permits matching of speed to the changing viscosity during mix.

The efficient draft tube is adjustable vertically to permit mixing of varied sized batches, from one third to full tank capacities. Discharge and cleaning of bottom are accomplished by the sweep paddle at inner base of the Crutcher.

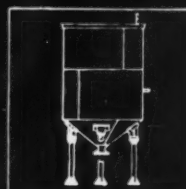
Houchin Crutchers are available in capacities up to 1400 gallons, with tanks of mild steel, or with inside surfaces of stainless steel or Monel. Tanks can be jacketed for heating or cooling. Write for full details today.



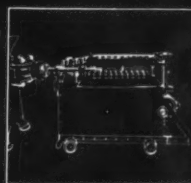
MILLS



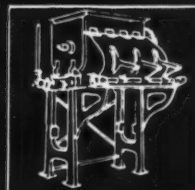
PLODDERS



KETTLES



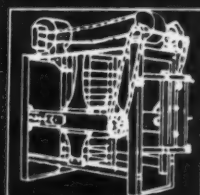
TOILET SOAP  
CUTTERS



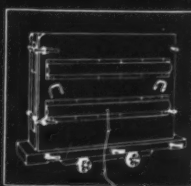
AMALGAMATORS



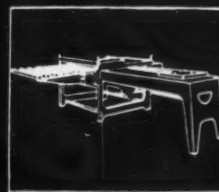
PRESSES



SLABBERS



SOAP FRAMES



LAUNDRY SOAP  
CUTTERS

## HOUCHIN MACHINERY CO., INC.

HAWTHORNE, NEW JERSEY, U. S. A.

*Manufacturers of Soap Making  
Machinery for over a Century*



## Machine Filling of Ammonia

**F**OR over 10 years Parsons Ammonia Co. of Passaic, N. J., had to cling to many hand operations in packaging its ammonia products because of the material's high foaming characteristics. Parsons' nationally known "Sudsy" Ammonia was particularly difficult to handle because it foamed even more than other products the firm packaged. The rapidly growing demand for Parsons' "Sudsy" made it imperative to install a fully automatic set-up as soon as possible. In spite of plant space limitations and the high cost of operation, which reflected a poor profit picture, it was essential that something be done. Parsons conferred with Herman Manas, president of MRM Co., Brooklyn specialists in machinery for packaging of liquid materials. As a result, a completely automatic set-up was developed that practically doubled Parsons' production, with half the previous personnel and using less floor space.

The story of Parsons' changeover from a hand operation to a completely automatic one begins about 1942. Up until that time almost all operations at Parsons Ammonia Co., including filling and capping, had been done by hand. In 1943, sales manager Frank Willis, who was then superintendent of the Passaic, N. J., plant and Manuel Placer, his assistant, built Parsons' first filling machine. The new hand-built machine filled 1800 cases per day, and six women attendants were required.

An MRM manually-operated straight-line filler was added to the home-built machine in 1945. The beginning of Parsons' first almost fully-automatic line was realized in 1947 with the addition of an un-

**Changeover from hand to machine filling of Parsons' household ammonia increased output, cut labor force. Special vacuum attachment helped lick foaming problem.**

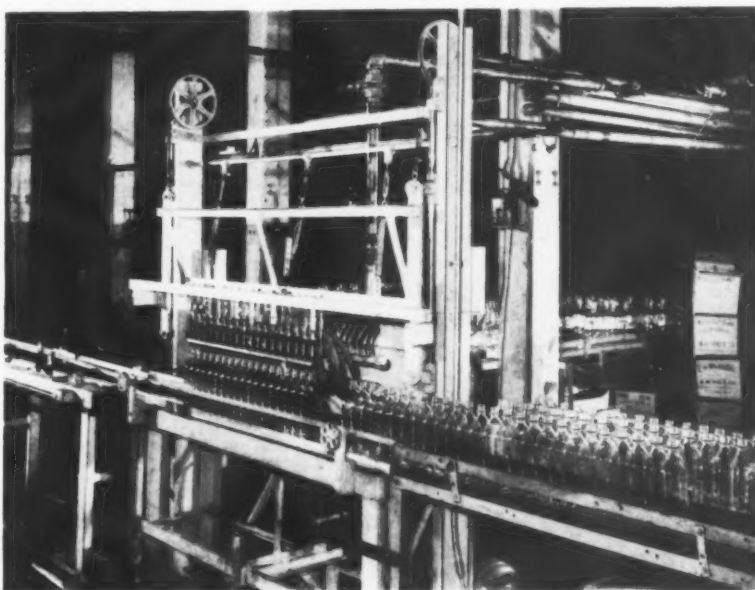
scrambler and an MRM 20-spout fully automatic rotary filler. Daily capacity of the Passaic plant was increased to almost 2300 cases per day with the new equipment. Working in cooperation with Parsons' engineering staff, MRM devised a method of automatically filling Parsons' "Sudsy" Ammonia by overcoming the excess foam problem simply by removing the foam from the container at time of fill.

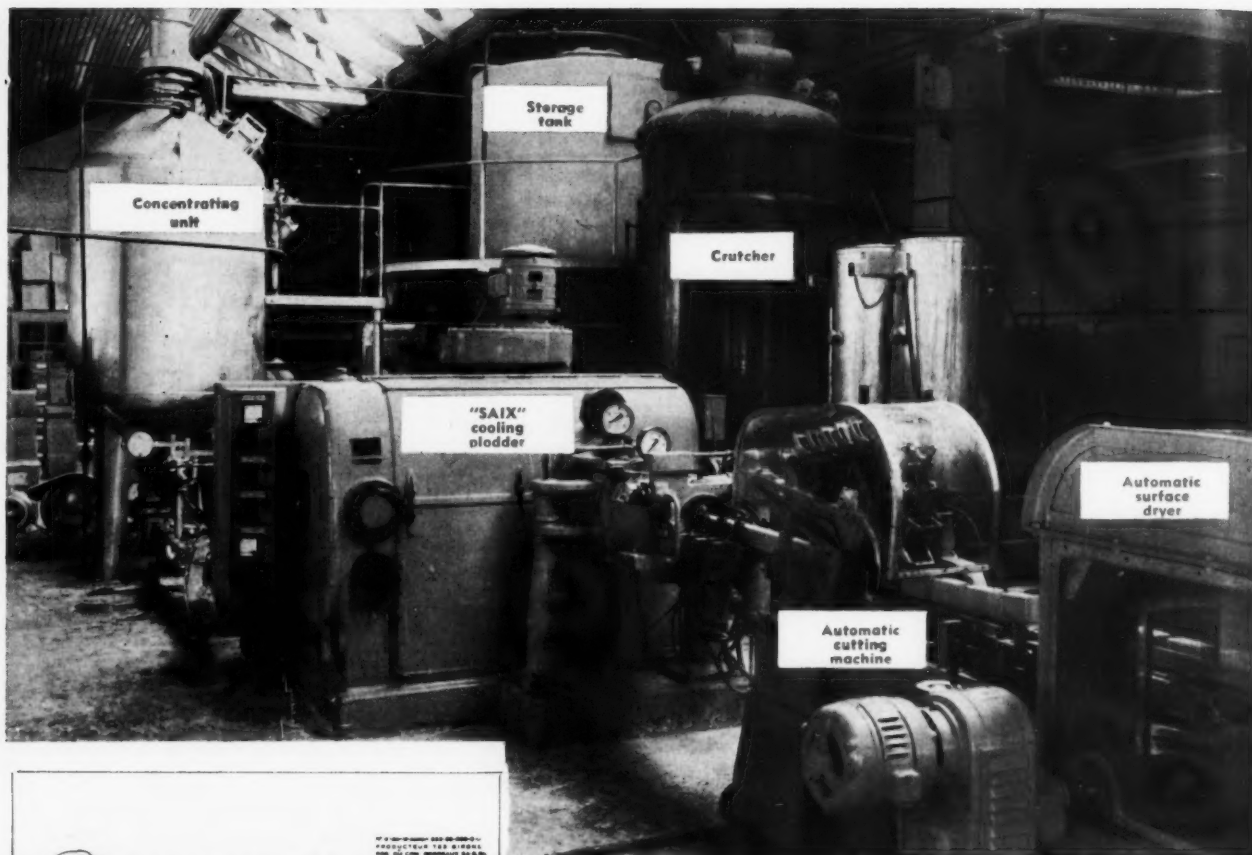
MRM adapted one of their standard 20 spout fully automatic machines to handle the ammonia filling requirements of Parsons. A specially designed vacuum attachment was fitted into the machine.

The ammonia liquid entered the container and simultaneously the vacuum attachment would remove the foam back into the main storage tank where it was again liquified and recirculated into the filling machine.

Excess ammonia is salvaged by dropping into two 1100 gallon tanks in the tank department below the fillers. When the liquid in these two tanks reaches a certain point, it is pumped into storage tanks, where it is stored until it can be used again. It then reverts into normal liquid, and flows back into the filling machine. The complete recirculation system prevents any

A forerunner of complete mechanization of its household ammonia filling operations is this hand-built filling machine at the Passaic, N. J., plant of Parsons Ammonia Co. The machine was the work of Frank Willis and Manuel Placer. At the time (1943) Mr. Willis was plant superintendent for Parsons and Mr. Placer his assistant. Mr. Willis is now sales manager and Mr. Placer superintendent of the Passaic, N. J., plant.





Photograph of a "SAIX" plant capable of producing automatically one ton of household soap per hour.



### "SAIX" TYPE AUTOMATIC COOLING PLODDER — MOST UP-TO-DATE PLANT FOR THE CONTINUOUS FINISHING OF SOAPS

"SAIX" cooling plodder performs six otherwise separate operations: it chills, homogenizes, controls internal texture of the soap, perfumes, gives translucency if required, and extrudes the soap as a continuous bar of any desired size.

"SAIX" performs these six steps under air tight conditions.

"SAIX" Versatility: Fats of high or low titer and containing high or low moisture content are processed rapidly and efficiently into good quality soaps:

- pure 62-63% T.F.M. soaps (containing 28% moisture) ● filled soaps (100% sodium silicate — bentonite — soda ash, etc.) down to 35% T.F.M. ● soaps made with 100% coconut oil ● dried soaps, pure or filled, up to 72-73% T.F.M. ● high rosin content soaps (up to 25-30% of rosin or fatty acids) ● toilet soaps ● transparent soaps, without the addition of sugar, soda ash, alcohol, glycerine, etc. ● medicinal soaps (carbolic soap, phenol soap, etc.) ● industrial soaps ● laundry soaps ● soaps made with olive oil foots, etc.

Main advantages over competitive plants on the market: When using the "SAIX" cooling plodder soap need not be dried in order to effect cooling by water evaporation, resulting in the following economies from the use of "SAIX" equipment:

- 100% savings on steam, 50% on cooling water, 50% on electrical power, 70% on labor ● "SAIX" produces soaps crystallized up to 100% in "beta" phase ● Warm water up to (+28° C) can be used to cool the soap, always getting a firm bar ● Production capacity: "SAIX" is manufactured for the following capacities: 0.1, 0.25, 0.5, 1, 2, 3 and more tons per hour ● "SAIX" can be run by an unskilled operator ● "SAIX" can extrude soaps containing from 35% up to 74% fatty acids which can be cut, stamped and packaged immediately without scraps ● "SAIX" refines and homogenizes the texture of soap getting a finished bar free from end markings and stripes ● Transparent soaps produced by a "SAIX" require no further milling and plodding for uniform texture and transparency ● Complete guarantee is given that there are abso-

lutely no changes in fatty acids and moisture percentages between the hot liquid soap fed into the "SAIX" and the resulting bar soap.

- "SAIX" units can be supplied alone or complete with additional equipment: concentrating unit, automatic cutting machine, automatic tunnel, automatic stamping machine, storage tank, soap crutcher ● "SAIX" extrudes soap without any worm to force the soap in the compression cone: these worms require the use of high melting point fats and reduce the natural moisture contents of the soap ● "SAIX" extrudes firmer bars which retain their shape in storage ● "SAIX" allows maximum economy in space ● MECCANICHE MODERNE are also makers of: complete plants for toilet and chip soaps, chipping machines, chilling rolls, soap driers, soap conveyors, silos, soap weighing machines, stamping machines, toilet soap pilot plants, plate and frame cooling presses ● Continuous automatic sulfonating plants, "SULFAN" type from 0.1 to 0.5 tons per hour and more capacity, spray driers for soap and detergents to make hollow beads or fine powders from 0.25 up to 5 tons per hour capacity.

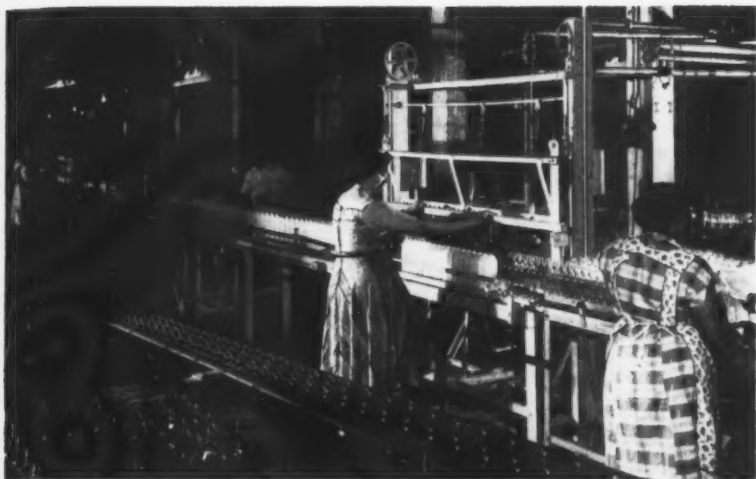


# MECCANICHE MODERNE

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BUSTO ARSIZIO (Italy)

U. S. SALES REPRESENTATIVES  
**AMERICAN ASSOCIATES**  
507 Fifth Ave. N. Y. 17



Six attendants were required to operate the old Parson's hand-built filling machine. The capacity of the unit was 1800 cases per day.

loss of product and guarantees clean and perfect high-speed filling.

MRM rotary filling machines are now in operation in Parsons Ammonia Co. plants in Passaic, N. J., Homewood, Ill., and Los Angeles, Calif.

In April, 1956, the entire production line at Parsons Ammonia Co., was modernized. Today 3000 cases leave the Passaic plant daily, a gain of 700 cases over the

previous high. Just three women are required to operate the entire line.

An unscrambling machine feeds glass containers into the new MRM 20-spout rotary filler. After filling, bottles are conveyed to a new automatic capping machine. Next, two bottles are labeled simultaneously by means of a newly installed duplex labeling machine. The finished Parsons ammonia con-



Redesigned bottle for C. C. Parsons' "Sudsy" Household Ammonia. Sparkling aluminum foil label is printed in gold, white, black and red. It is a revision of the first label which appeared on Parsons' ammonia in 1880.

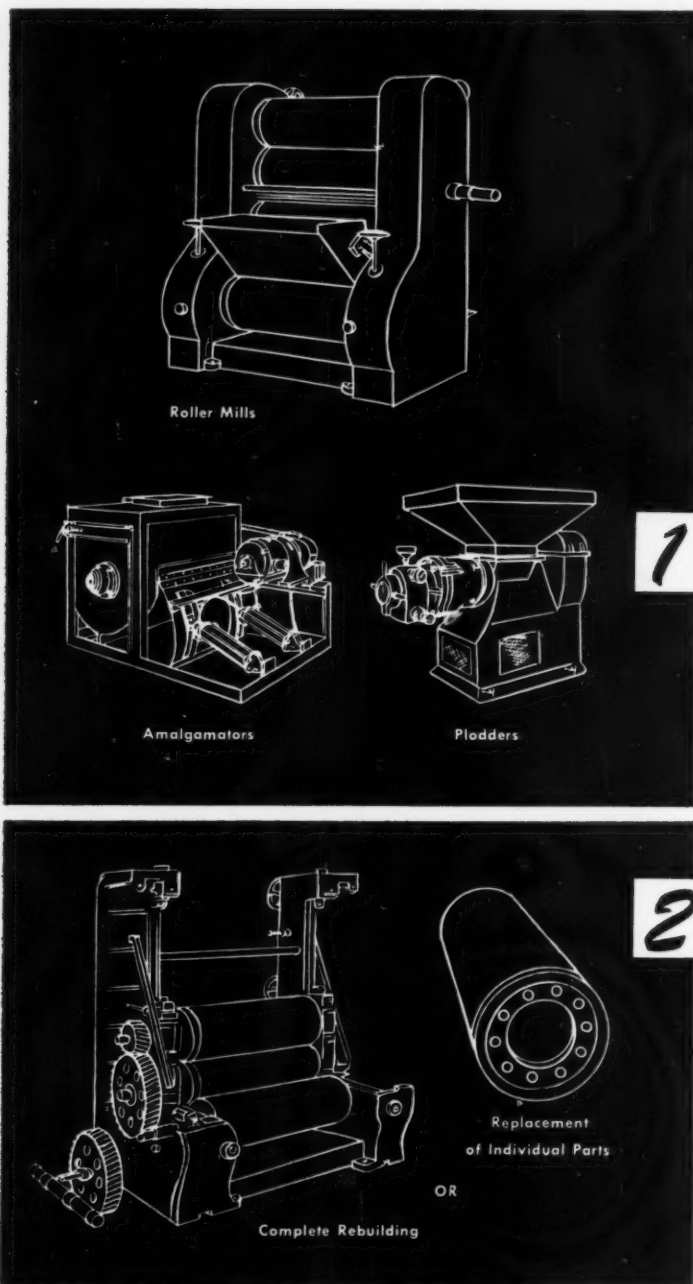
tainers move on to the packing line, where two girls pack the cartons. A Standard-Knapp automatic sealing machine seals the cartons.

Parsons Ammonia Co. origi-

Modern production line for filling Parsons' ammonia includes a 20 spout MRM semi-vacuum type rotary filler. Unit is specially

designed to overcome problem of foaming. Daily capacity using new filling set-up is 3000 cases. Three women operate entire line.





*Lehmann provides*  
**2** COST-CUTTING  
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*to more profitable  
 soap production*

**1**

#### LEHMANN SOAP FINISHING MACHINES

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**2**

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Lehmann is completely familiar with the mechanical problems involved in processing to past standard formulations and to the newer detergent types. Make use of Lehmann services on any processing machine problem.

Your problem is no further away than your telephone. Let's talk it over.



## J. M. LEHMANN COMPANY, Inc.

**COAST-TO-COAST SERVICE**

Moore Dry Dock Company  
Oakland, California

Lammert & Mann Co.  
Chicago 12, Illinois

J. M. Lehmann Co., Inc.  
Lyndhurst, New Jersey





Parsons' new duplex labeling machine applies labels to two bottles simultaneously.

nated the use of household ammonia for house-cleaning as long ago as 1876. "Sudsy" detergent ammonia is a blend of three bland detergents and ammonia developed for Parsons in the laboratories of Foster D. Snell, Inc., New York City. In a cloudy, but "clear" form, the formula does not separate except in very cold temperatures. When brought back to room temperature, the formula returns to its dissolved form, according to Parsons.

The "Sudsy" package recently underwent complete redesign—from the bottle to the shipping container. An aluminum foil label printed in gold, white, black and red is a revision of the first label which appeared on Parsons' ammonia in 1880. The bottle is shorter—for better super market stacking—and has "grip edges" and a wider closure for price marking.

Modernization of the packaging was extended to the shipping container which carries identification on all sides of the tear-strip case. The two side panels are labeled in blue and white against the brown background. The shipping cases have been designed with an eye toward better palletization and stacking.

Back labels on the bottles carry use suggestions. At intervals, the suggestions are changed or modified. "Sudsy" comes in three

sizes—pint, quart and half gallon.

In 1948, Parsons Ammonia Co., completely modernized its shipping department. All loading is done by boosters. Conveying systems are set right into huge trailer trucks, all pushed by Rapid Standard boosters. As many as 1,000 cases per hour can be loaded into trucks with the new conveying system and only two men are required for the entire operation. Unloading can be done in the same manner.

#### New Bete Applicator

Bete Fog Nozzle, Inc., Greenfield, Mass., recently announced a new chemical applicator for use

with all types of emulsions and concentrated liquids, including insecticides and pesticides. Trade-named "Mist-Er-Mix," the new unit is designed to provide either a mist or jet stream spray. It can be attached to any standard garden hose and is claimed to be non-clogging and easy to clean. Further information can be obtained on request to the company, 309 Wells St., Greenfield, Mass.

#### Colgate Fellowship Grant

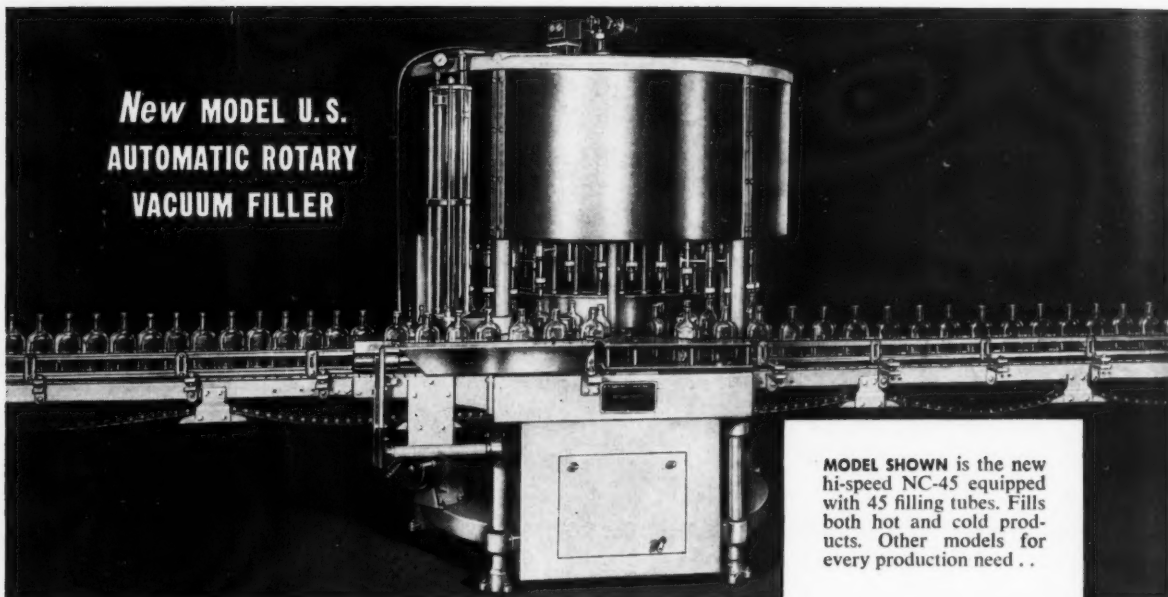
Colgate-Palmolive Co., New York, has for the fourth consecutive year made a grant of \$6,000 to Rutgers University for support of three research fellowships in chemistry, it was announced recently by Dr. Lewis Webster Jones, Rutgers president.

Colgate, which operates its own division of dental medicine on the Rutgers campus, began the fellowship program in 1954 with an initial grant of \$12,000 to support the first two years of the work. An additional grant of \$6,000 was made in 1956.

Dr. Peter A. van der Meulen, director of Rutgers' School of Chemistry, said that the C-P financed fellowships will be awarded later in the year to outstanding graduate students and investigators of post doctoral standing.



**New MODEL U.S.  
AUTOMATIC ROTARY  
VACUUM FILLER**



**MODEL SHOWN** is the new hi-speed NC-45 equipped with 45 filling tubes. Fills both hot and cold products. Other models for every production need . .

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**MODEL B-49 STRAIGHT-LINE VACUUM FILLER** for liquids and semi-liquids. With or without discharge conveyor. Contact parts stainless steel, or plastics on order. Adjustable for AGST to gallon size finishes. Send for the Model B-49 Bulletin.

**MODEL B-2 VACUUM FILLER.** Continuous production, filling two containers at a time. For liquids and semi-liquids. Automatic product supply. Vacuum adjustable and flow-regulated. For containers up to 4 1/8" dia. Send for Bulletin B-2.



Whatever your liquid filling needs may be, write for engineering recommendations or request the "Rotary Filler Bulletin."

**U. S. SIPHON FILLER.** For all liquids, foamy products, products that do not permit agitation. Stainless steel tubes; acid resistant tank. Write for Siphon Bulletin.



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**SPECIALISTS IN LIQUID FILLING AND CONTAINER CLEANING EQUIPMENT**

### New Reilly Index Catalog

Reilly Tar & Chemical Corp., Indianapolis, recently announced its 1957 index catalog, which describes all of the chemicals manufactured by the company. The products are listed alphabetically and according to classes. In instances where they are identified by more than one name, cross references are given. The brochure also provides complete information on eight new compounds developed by Reilly during 1956. Copies of the catalog may be obtained from the company, Merchants Bank Building, Indianapolis 4.

### New Velsicol Brochure

A new 64-page, paper-bound brochure, entitled "Here's What Chlordane Insecticides Can Do for Your City," recently was published by Velsicol Chemical Corp., Chicago. Included in the booklet are technical bulletins dealing with a variety of insect pests, insect habits, insecticide dosages, and other aspects of municipal pest control. The brochure also lists control standards and specifications of chlordane. Copies of the literature may be obtained from the company, 330 East Grand Ave., Chicago 11.

### New MM&R Catalog

Magnus, Mabee & Reynard, Inc., New York, recently issued its annual spring catalog containing over 1,000 listings of essential oils, balsams, concentrated flavors, oleoresins, basic perfume oils, aromatic chemicals, and certified colors, for use in the chemical specialties and allied industries. The booklet also contains a listing of MM&R products according to the industries in which they are utilized and provides data on new product developments. Copies of the catalog are available from the company, 16 Desbrosses St., New York 13.

### Peracetic Acid Data

Development of a pressurized peracetic acid for use in laboratory sterilization is described in a new bulletin, recently published by

Becco Chemical Division of Food Machinery and Chemical Corp., New York. The eight-page paper-bound pamphlet also provides complete information on the applications of this new aerosol product, which is designed to sterilize apparatus, instruments, gloves and entire laboratory areas. Copies of the bulletin, #83, may be obtained from Becco Chemical Division of Food Machinery and Chemical Corp., Station "B", Buffalo 7, N. Y.

### New Dow Booklet

A new booklet on piperazine was published recently by Dow Chemical Co., Midland, Mich. The brochure describes the properties and reactions of the compound and provides complete toxicological and handling information. Piperazine can be utilized as an intermediate in the manufacture of surface active agents, high molecular weight polymers, water softeners, plasticizers, corrosion inhibitors, solvents.



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**The MARION MIXER mixes to Laboratory  
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The Marion Mixer is engineered for precision mixing and turns out TOP QUALITY mixed products for chemical manufacturers everywhere. The Marion Mixer is recommended for mixing the Lightest or Heaviest Materials. Its simple, efficient design is rugged enough to handle any volume of mixing large or small . . . and at the same time, it constantly safe-guards your formula mixes from loss of uniformity. Laboratory tests have proven that even trace materials can be blended into the most complicated industrial chemical formulas, and pass individual analysis tests for the most even batch distribution possible.

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## CaPeM SCREW CAPPERS

Speed production for Texize Chemicals, Inc.



**CONSOLIDATED PACKAGING MACHINERY CORP.**

1400 WEST AVENUE, BUFFALO 13, NEW YORK

This Model D-6-F Rotary CaPeM increased production to such an extent that Texize Chemicals, Inc., Greenville, S. C. recently ordered a duplicate. This completely automatic line is operated continuously at production rates in excess of 200 bottles per minute.

CaPeM Screw Cappers apply all types of metal and plastic screw caps to jars, bottles, cans and jugs ranging in size from 1 oz. to gallons. Speeds range from 40 to 300 containers per minute. Write for complete information.



# NEW Patents

The data listed below is only a brief review of recent patents pertinent to the readers and subscribers of this publication. Complete copies may be obtained by writing to the publisher of this magazine, MacNair-Dorland Co., 254 W. 31st Street, New York, 1. N. Y., and remitting 50c for each copy desired. For orders received from outside of the United States the cost will be \$1.00 per copy.

**No. 2,780,554. Washing and Waxing Composition,** patented by Louis L. Lerner, Chicago, Ill., assignor to Allied Home Products Corp., Beloit, Wis. Described is a detergent waxing emulsion of the oil-in-water type chilled to a temperature below the fusing point of the dispersed phase and consisting essentially of water, emulsified carnauba wax, and emulsifier consisting of cationic surface-active emulsifier including water-dispersible quaternary ammonium salt cationic emulsifier containing an aliphatic radical having from 8 to 18 carbon atoms and nonionic surfactant which is a detergent and an emulsifier.

**No. 2,780,568. Method for Cleaning Windshields,** patented by John M. Clark, Oakland, Calif. Revealed is the process of cleaning a windshield, comprising: distributing over a surface of such windshield a cleaner selected from the group consisting of potassium hydrogen tartrate, boric acid and oxalic acid all in powdered form, wetting said surface and said cleaner, and wiping such surface with a squeegee.

**No. 2,781,289. Fungicidal Coating Composition Containing Thianaphthene Carboxylic Acid Salt,** patented by Otto C. Elmer, Fishkill, and Edward R. Christensen, Beacon, N. Y., assignors to The Texas Co., New York. Fungicidal compositions are disclosed comprising a liquid carrier, 0.1 to 10 percent of a metal salt of thianaphthene carboxylic acid selected from the group consisting of the copper, zinc, lead, and sodium salts, and 1 to 10 percent of a detergent selected from the group consisting of alkali metal and alkaline earth metal salts of fatty acids, of alkaryl sulfonates, and of alkyl sulfates.

**No. 2,783,182. Non-Staining Chlorophyll Preparations,** patented by Manno Fredrick Nelson, Jr., Madison, N. J., assignor to Colgate-Palmolive Co., New York. A dentifrice composition is covered comprising at least about 20% by weight of polishing material, up to 5% by weight of an organic detergent, about .001 to 5% by weight of chlorophyllin normally tend-

ing to deposit a greenish stain on an absorbent surface, and up to 5% by weight of a water-soluble polyvinylpyrrolidone having an average molecular weight of 10,000 to 300,000, the ratio of said polyvinylpyrrolidone to said chlorophyllin being at least about 1:1 by weight and sufficient to inhibit the staining of the absorbent surface by the chlorophyllin.

**No. 2,780,556. Microcrystalline Wax Compositions,** patented by August A. Schaerer, Orinda, Calif., assignor to Shell Development Co., New York. The patent describes a wax composition having improved seal strength characteristics comprising a major proportion of a microcrystalline hydrocarbon wax having added thereto between about 2% and about 8.5% by weight of polycyclic substantially saturated hydrocarbons containing a maximum of one double bond per molecule and having an average of between about 3 and about 4 fused hydrocarbon rings per molecule.

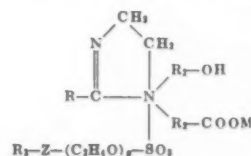
**No. 2,783,177. Warfarin Sodium Rodenticidal Composition,** patented by Karl Paul Link, Middleton, Wis., assignor to Wisconsin Alumni Research Foundation, Madison, Wis. The patent covers a rodenticide product for use in the preparation of water baits consisting of sand coated with sufficient 3-( $\alpha$ -acetylbenzyl)-4-hydroxycoumarin sodium to provide the product with about 0.1-10% by weight of 3-( $\alpha$ -acetylbenzyl)-4-hydroxycoumarin, said coating being formed by applying an aqueous solution of 3-( $\alpha$ -acetylbenzyl)-4-hydroxycoumarin sodium free from free alkali to dry, clean, washed sand and drying the same thereon, said coating being characterized by being firmly bound to the sand when dry and being readily released in solution when contacted with water.

**No. 2,781,320. All Purpose Detergent Bar,** patented by Charles F. Jelinek, Parkwood, Easton, Pa., Raymond L. Mayhew, Phillipsburg, N. J., and John A. Yeager, Easton, Pa., assignors to General Aniline & Film Corporation, New York. The patent reveals a detergent bar comprising (A) about 5 to 50% by weight of a synthetic organic anionic detergent selected from the group consisting of the water soluble alkali metal and amine salts of higher aliphatic sulfates and sulfonates containing a hydrocarbon radical with at least 11 carbon atoms in a straight chain, and alkylbenzene sulfates and sulfonates containing at least one alkyl side chain radical of at least 8 carbon atoms, (B) about 5 to 25% by weight of a synthetic organic anionic lathering agent selected from the group consisting of the water soluble alkali metal and amine salts of alkyl aryl sulfates and sulfonates containing at least one alkyl side chain radical of from 2 to 6 carbon atoms and devoid of alkyl side chain radicals of more than 6 carbon atoms, (C) about 5 to 25% by weight of a synthetic organic anionic lathering agent selected from the group consisting of

the water soluble alkali metal and amine salts of lower branched chain aliphatic sulfates and lower alkyl esters of lower aliphatic sulfopoly-carboxylic acids containing an open chain hydrocarbon radical of from 3 to 9 carbon atoms, and from about 25 to 75% by weight of a water-soluble salt of a higher aliphatic monocarboxylic acid.

**No. 2,781,321. All Purpose Detergent Bar,** patented by Raymond L. Mayhew, Phillipsburg, N. J., and John A. Yeager, Easton, Pa., assignors to General Aniline & Film Corp., New York. Disclosed is a detergent bar comprising, by weight, (A) about 5 to 50% of a synthetic organic anionic detergent selected from the group consisting of the water-soluble alkali metal and amine salts of an alkylbenzene sulfonate containing at least one alkyl side chain radical of at least 8 carbon atoms, (B) about 15 to 65% of a water-insoluble salt of a higher fatty acid of at least 9 carbon atoms with a polyvalent metal selected from the group consisting of calcium, magnesium, zinc and aluminum, (C) about 5 to 25% of a synthetic organic anionic lathering agent selected from the group consisting of the water-soluble alkali metal and amine salts of an alkylaryl sulfonate containing at least 1 alkyl side chain radical of from 2 to 6 carbon atoms and devoid of alkyl side chain radicals of more than 6 carbon atoms, and (D) about 5 to 25% of a synthetic organic anionic lathering agent selected from the group consisting of the water-soluble alkali metal and amine salts of a lower alkyl ester of a lower aliphatic sulfopoly-carboxylic acid containing an open chain radical of from three to nine carbon atoms.

**No. 2,781,358. Detergent Acid Salts of Certain Imidazolinium Compounds,** patented by Hans S. Mannheimer, New York. A novel compound is disclosed of the following formula:



in which R is a hydrocarbon radical of 4 to 18 carbon atoms; R<sub>2</sub> is an organic group selected from the class consisting of (a) aliphatic hydrocarbon groups of 1-4 carbon atoms, (b) hydroxy substituted aliphatic hydrocarbon groups of 1-4 carbon atoms, (c) aliphatic ether groups, each of said groups having a single ether linkage therein and otherwise being hydrocarbon of 2-4 carbon atoms, (d) aliphatic ether groups, each of said groups having a single ether linkage therein and otherwise being hydroxy substituted hydrocarbon of 2-4 carbon atoms, (e) aliphatic keto groups each of said groups having a single keto linkage therein and otherwise being hydrocarbon of 2-4 carbon atoms, (f) aliphatic keto groups, each of said groups having a single keto linkage therein and otherwise being hydroxy substituted hydrocarbon of 2-4 carbon atoms, R<sub>3</sub> is a hydrocarbon radical of 6 to 20 carbon atoms; Z is an atom selected

(Turn to Page 189)

Excerpts  
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The Chemical  
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(1871-1935)

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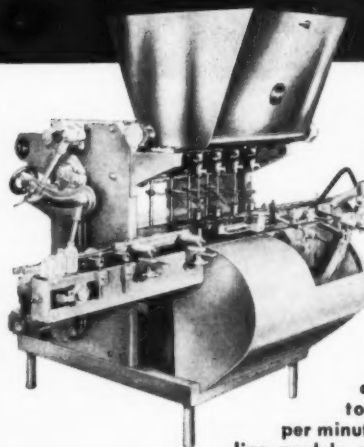
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# Products and PROCESSES

## Glycols in Brake Fluids

Glycol ethers help to increase the boiling point of brake fluids, thus preventing vapor lock, according to an article in the February issue of *Chemical Progress*, published by Carbide and Carbon Chemicals Co., New York. Citing Chrysler Corp.'s "Mopar" heavy duty brake fluids as an example, the following properties are called for in a product complying with the heavy-duty specifications of the Society of Automotive Engineers (SAE-70-R1): controlled swelling but no shrinking of the rubber seal in the wheel brake cylinder; no corrosion on metals used in brake lines and cylinders; good lubrication to avoid frictional drag on pistons when brakes are applied or released; high water tolerance so fluid can dissolve absorbed water (undissolved water could freeze in cold weather and make brakes inoperative); and high fluidity at very low temperatures. According to Chrysler, an addition of only 10 per cent of substandard fluid can reduce the boiling point of its heavy duty fluid as much as 80°F.

## Aerial Bactericide Test

A screening method for substances intended as aerial bactericides has been evolved and published as "British Standard Technique for the Preliminary Assessment of Aerial Bactericides"; B.S. 2796, 1956. Specified are the capacity of the test chamber, temperature and relative humidity, test organism, and ingredients for a broth medium. Requirements for taking a series of samples, method of producing the bacterial spray, and the special apparatus used for this purpose are included. Interpretation of results is covered.

The test method may be found useful also for the purpose of quality control in manufacturing processes. Copies of the stand-

ard may be obtained from the British Standards Institution, Sales Branch, 2 Park Street, London W.1. The price is 3s.6d. (approx. 50cts).

## New Resin Coating

A new water-resistant and greaseproof coating for use on containers of manila, chip, sulphate or sulphate type boards, was developed recently by Paisley Products, Inc., New York. Called "Coating 9319," the new product has a resin base and is said to be easily applied by standard coating machinery. Coverage of 400 square feet per pound

Crutcher for mixing chemicals and soap stocks of a broad viscosity range was announced recently by Houchin Machinery Co., Hawthorne, N. J. It features power and sturdy construction to mix thick liquids and has a variable speed drive, adjustable between 23.3 and 93.0 rpm. This permits matching of impeller speeds to different types of material or the changing of viscosity of the mix by processing.

Efficiency through the broad viscosity range is achieved by advanced design of the draft tube. The draft tube is also adjustable to permit mixing of batches of various sizes, from one-third to full tank capacities. Various types of screw or vane mixing blades are available.

Ejection of charge and cleaning of bottom are accomplished by a sweep paddle at inner base of crutcher.

The new crutcher comes in wide range of capacities. Unit pictured has a tank seven feet high and six feet in diameter. It has a 1400 gallon capacity. Other sizes are available, with tanks of mild steel or with inside surfaces of stainless steel or Monel, jacketed for heating or cooling.



(wet weight) will produce 1/5th mil dry film. The pH is eight to nine and the weight per gallon is 9.1 pounds. Further information can be obtained on request to the company, 630 West 51st St.

## New Glyco Resin

A new, water soluble, synthetic resin, designed for use in insecticides, aerosol hair sprays, adhesives, abrasives and protective paper coatings, was introduced recently by Glyco Products, Inc., New York. The new product, dimethyl hydantoin formaldehyde resin, has a high gloss, is resistant to oils, gasoline and many aromatics, and is said not to ferment or decompose. A 10 percent water solution, it is neutral in color and almost odorless. Further information can be obtained on request to the company, 350 Fifth Ave.

## New Solvay Folder

A new folder describing the uses of methylene chloride in non-aqueous aerosol formulations, was issued recently by the Solvay Process Division of Allied Chemical & Dye Corp., New York. The two-color pamphlet also provides information on the product's solvent action, safety features and its effect on handling equipment. Several special aerosol applications of methylene chloride are also described. It is available from Solvay in 55 gallon drums and tank car lots of 4,000; 6,000; 8,000 and 10,000 gallons. Copies of the folder may be obtained from Solvay, 61 Broadway, New York 6.

## New Bareco Brochure

A new brochure describing its complete line of microcrystalline waxes, was issued recently by Bareco Wax Co., Kilgore, Tex. The literature includes a comparison of physical and chemical properties of paraffin and microcrystalline waxes, plus specifications of each of the grades of microcrystalline waxes found in three major groups: hard, emulsifiable and plastic. Applications of these waxes are also indicated.



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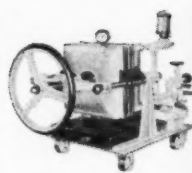
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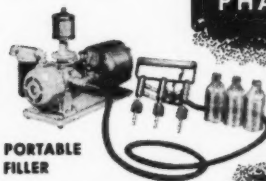
Other items for experimental aerosol filling include: pressure fillers; constant temperature water baths; snap-on cap for aerosol containers; pressure testers; liquid transfer apparatus.

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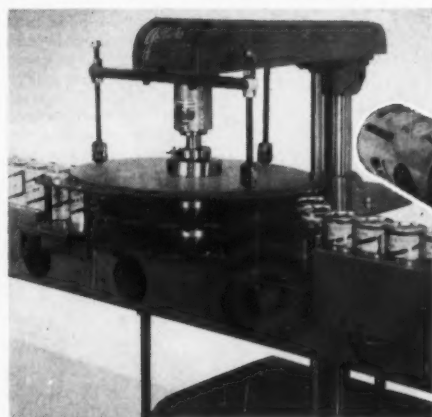
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## PRODUCTION *Clinic*

By **E. G. Thomssen, Ph. D.**

**J**OB monotony can have a very adverse effect on production work. The irksome sameness of doing one job over and over again not only stifles creative thinking on the part of the worker, but it can lead to carelessness and consequently a lowered quality of work performed.

There is hardly a week, or even a day, that passes in which production workers fail to experience a sense of frustration or dissatisfaction if they are doing the same routine tasks day in and day out. Such a feeling is injurious to efficiency, and also tends to build up resentment towards the job.

Production executives have long been aware of the existence of this problem of plant employees performing monotonous jobs. Various changes in procedure have resulted in improved work, greater satisfaction and increased production. Steps taken to overcome the deadening effects of repetitious work include rest periods, coffee breaks, music provided on the job by radio or piped into the plant, occasional changes in employees' work stations to give them an opportunity to work with different people, rather than have them work next to the same person or persons for long periods. In straight line production, particularly, it has been found to be desirable to move employees to different positions along the conveyor belt about every hour. This gives them a chance to vary the work they are doing and to associate with different sets of employees. Such innovations have proved sound, even though they have met with opposition as being wasteful when first introduced.

While the problem of combatting monotony or boredom among factory workers has been given increased attention in recent years, there has been considerably



Dr. E. G. Thomssen

less thought given to the problem as it applies to laboratory workers, supervisors and production executives. It is true that employees in the latter categories may have greater variety in their work than those operating a machine or working on a production line. However, even in the three classes of work mentioned above, there is a certain amount of monotony, which has harmful effects as far as the individual and his duties are concerned. The routine of carrying out the same type of work day after day and in the same place makes men restless and dissatisfied. Production department heads have told the writer that they would like to become salesmen in order to get out and meet different people. A few weeks vacation hardly compensates for the rigors of the sameness of the working days of the inside man. Just as changes in the daily work pattern have proved beneficial to the factory worker, so has the adoption of programs to vary the duties and locales of production executives been found desirable.

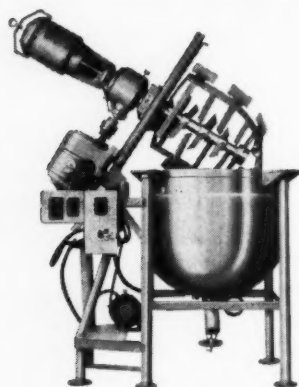
One step to break job monotony which the writer observed in operation first hand is worth mentioning. Recently, in the company of a technical salesman, I had occasion to call on an executive of

a firm to discuss a problem on which there had been considerable correspondence over a period of several months. While we were in the executive's office he asked to be excused for a few moments and from time to time various employees of the firm came to his office and conferred with him in inaudible tones. After this had continued for about ten minutes we were ushered into a conference room by the executive. Seated around a large table was the firm's entire force of chemists, supervisors and production executives. The salesman and I were introduced to the group by the vice-president. He outlined the reason for the conference and called upon each of those present for their comments on the problem being considered. We were asked for any further information which we might provide. The meeting was extremely interesting and produced much valuable information. After the subject of the conference had been disposed of, questions on other phases of this plant's operation were raised. These were answered to the best of our ability.

One thing that struck me about the meeting was the atmosphere of mental stimulation that it provided. I commented to the officer who had called the meeting that I was pleased with, proud of and surprised at this innovation. He replied that the meeting had been very valuable not only in providing a solution to the immediate problem, but also in giving the inside men an opportunity to meet men from the outside. This tended to break the monotony of working daily under the same conditions. When the meeting broke up it was obvious that the men attending it went back to their jobs very much stimulated. The conference idea is a good one and should be adopted widely for the purpose of our meeting and other ones as well.

Other methods of overcoming the sameness of certain production operations have also been helpful. One such involves having pro-

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duction executives change their environment for a short time. A brief automobile drive or a walk can do wonders in refreshing the mental outlook of the man subject to a tiresome daily routine of unvarying sameness.

Similarly, I know of one case in which production heads were requested to spend two periods a day reading in the plant's well equipped library. Periodicals available in the plant library included business magazines, technical journals and class magazines.

Some companies call short, regularly scheduled meetings of various departments at which problems pertaining to the business are discussed. Once a week, or at some other stated interval, officials of the company are present. In other cases purchasing agents invite production men to aid in interviewing salesmen of items of interest to the plant man.

Enlightened management in many plants is scrapping the old idea that because a production head is hired to work so many hours per day he must be on the job every minute of the day. Occasional breaks away from the particular job, as outlined above, result in

better supervision and increased plant efficiency.

**Production Chart**

**E**XPEDITING of production, inventory control and scheduling is greatly simplified by use of visual control. Graphic Systems, 55 W. 42 St., New York 26, N. Y., recently announced a new free, 36-page booklet which describes the visual control aid known as "Board-master." At a glance, the "Board-master" can give the production or inventory status of one or more products.

**Paper "Buildings"**

**P**APER "buildings" for protecting items stored outdoors from the effects of the elements are now available from Kennedy Car Liner & Bag Co., Shelbyville, Ind. The paper "buildings" are preformed paper bags, which are water-proof, tear-proof and flame-proof.

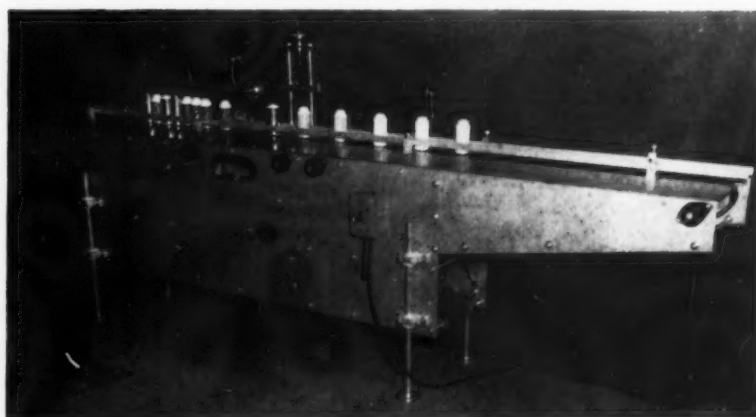
**Steam Generators**

**E**LECTRIC steam generators for producing high or low pressure steam are now being marketed by Automatic Steam Products Corp., 140 W. 31 St., New York 1, N. Y. Compact and portable, these steam generators may be had in a wide range of sizes for various purposes.

**New Kiwi Dating Machine**

A new automatic code dating machine for use on concave bottoms of pressurized cans or flat bottoms of other round containers, was developed recently by Kiwi Coders Corp., Chicago. The new machine is also equipped for price marking

on the top of the can and for imprinting brand names around the circumference of the can in as many places as necessary for product identification. Additional information may be obtained from Kiwi Coders Corp., 3804 North Clark St., Chicago 13.



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By John W. McCutcheon

**T**O continue last month's column dealing with fatty acids we shall examine some of the pertinent basic concepts and nomenclature which are frequently misunderstood. For example, when speaking of hydrogenation the terms 'hardening' and 'hardened fat' frequently puzzle the layman. However they are mere colloquialisms referring to the process of hydrogenation, which may 'harden' fats to varying degrees. By the chemical addition (by means of a catalyst) of one or two per cent hydrogen to a soft oil, such as soybean or cottonseed oil, the unsaturated glyceride is converted into a saturated glyceride. Thus oleic acid is changed to stearic acid. If insufficient hydrogen is present, linoleic becomes oleic or iso-oleic acid; if more than enough hydrogen is available linoleic is converted to stearic acid. Oleic and linoleic acids and glycerides containing a preponderance of these acids, are liquid fats, whereas stearic acid and glycerides of high stearic content are hard and brittle. Thus it is easy to see how the hydrogenation process became associated with the 'hardening' of fats and why the department concerned with hydrogenation may be called the 'hardening' department of a plant.

The addition of a little hydrogen makes the fat just a little harder, or in terms of the edible fat manufacturer the 'congealing point' is raised. The soap manufacturer is more interested in the fatty acids than in the glycerides and uses the average melting point or the titer to learn how much stearic acid has been formed.

The producer is well advised to use fat as a starting raw material wherever possible, because it is easier to harden a fat or oil than a fatty acid. After hardening, the fat can be split and purified. However,



with many starting materials, such as for instance vegetable oil foots, it is necessary to split first and hydrogenate or harden afterwards. The processing of acids presents certain problems because they are corrosive to ordinary steel and more reactive with the catalyst thereby tending to reduce its effectiveness. The use of higher gas pressures, higher temperatures, more catalyst, and non-corrosive construction materials, will overcome these difficulties but at the same time increase the capital and operating costs of the process.

Normal 41 titer tallow contains about 50 per cent oleic acid, 20 per cent stearic and 30 per cent palmitic. When split and pressed or solvent crystallized to remove the oleic acid, the resulting 'stearic' acid of commerce contains about 45 per cent stearic acid and 55 per cent palmitic acid. If hydrogenated before or after splitting the resulting 'stearic' acid will contain about 70 per cent stearic and 30 per cent

palmitic. This high, true stearic acid content is objectionable for certain uses, such as cosmetic and crayon manufacture. It causes little inconvenience in rubber processing where such large quantities are used that the high stearic hydrogenated tallow grade material is known as: "rubber grade stearic acid."

\* \* \*

## Distillation

**E**ASE of fatty acids separation by distillation is not influenced by previous hydrogenation.

Separation by fractional distillation depends on differences in boiling points and these differences are approximately proportional to the molecular weights. The molecular weights of stearic and oleic acids are 282 and 284 respectively, but for palmitic and stearic the figures are 256 and 284 respectively, which is a considerable difference. An equally large difference exists between the weights of lauric and myristic, which are 200 and 228 respectively. However, because the individual weights are lower the ratio of difference is greater. Therefore, with a still capable of making a 90 per cent separation of lauric and myristic it would be considerably more difficult to separate palmitic and stearic. The table below may clarify this point.

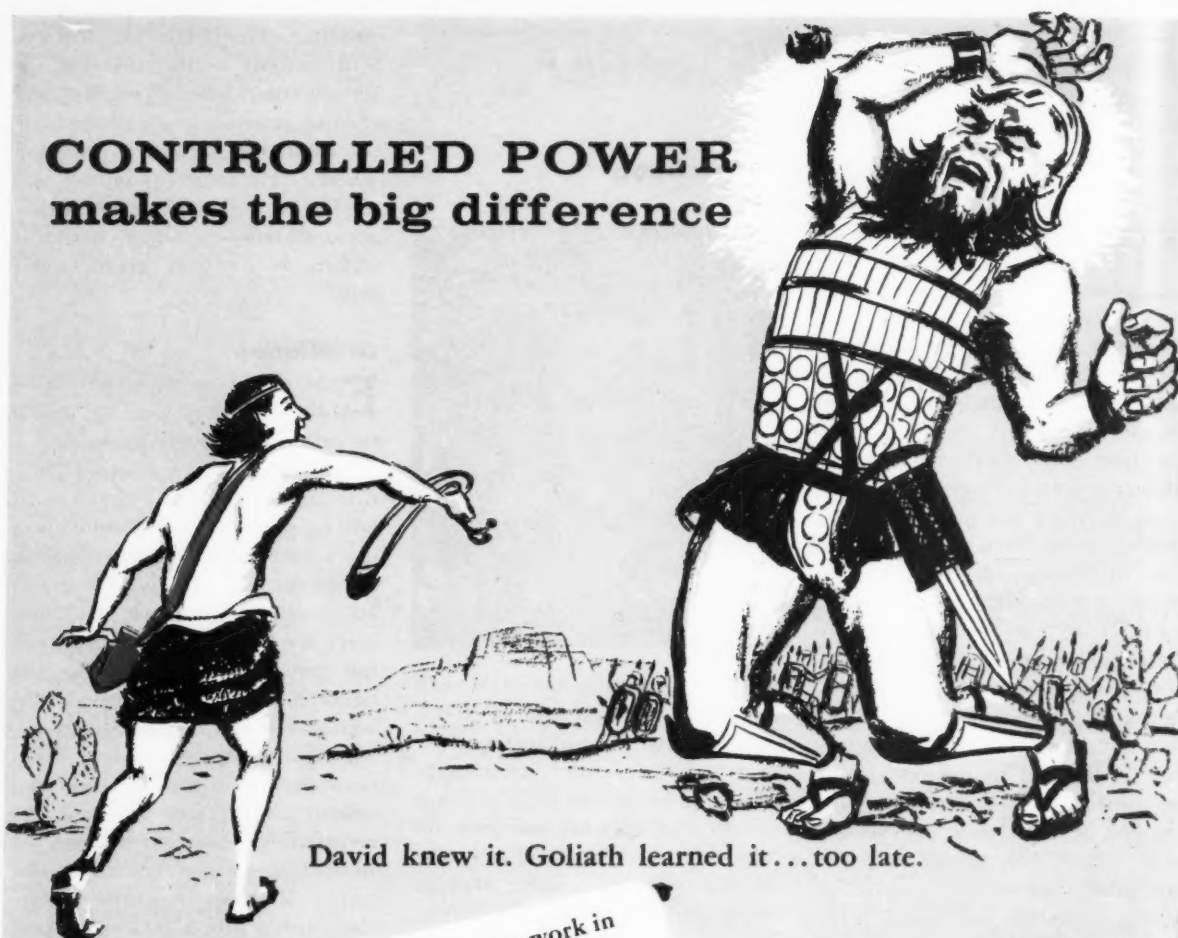
Vapor pressure curves for the above acids are for all practical purposes parallel within the pressure ranges commonly used in this process. However, the heat of vaporization for conditions shown in the table does increase from 70 cal/g for stearic to 100 cal/g for lauric.

\* \* \*

**C**ONCERN for the stimulation of fundamental research in the fields basic to our industry has often been expressed in this col-

Acid	Mol. Wt.	Ratio to Stearic	Approx. Boiling Pt. °C at 10 mm. Pressure	Difference °C
(I) Stearic	284	1.00	220	2 (I-II)
(II) Oleic	282	.99	218	
(III) Palmitic	256	.90	207	13 (I-III)
(IV) Myristic	228	.80	192	15 (III-IV)
(V) Lauric	200	.70	171	21 (IV-V)

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David knew it. Goliath learned it...too late.

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**DRYMET**<sup>®</sup>  
ANHYDROUS SODIUM METASILICATE

Your cleaners will have—

more soil-loosening power because DRYMET is so highly concentrated

more soil-dispersing power because DRYMET is so highly colloidal

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umn. The \$500.00 annual scholarship award, sponsored by the Fatty Acid Division of the Association of American Soap and Glycerine Producers and administered by the Fatty Acid Award Committee of the American Oil Chemists Society, is a promising step in the right direction. The fatty acid scholarship was awarded for the first time in 1955. Application forms and details are available from the award committee of AOCS, 35 East Wacker Drive, Chicago.

#### ★ **New Dexter Softener**

A permanent, non-yellowing softener and lubricant for use in resin formulations on cottons was announced recently by Dexter Chemical Corp., New York. The product, "Ampitol PE-30," is a non-ionic emulsion of polyethylene which is said to increase the tear and abrasion strength of many fabrics. The softener can be used on the acid or alkaline side and is said to withstand magnesium salts of various types.

#### ★ **New MRM Filler**

A new semi-automatic liquid filling machine, designed for five gallon containers of either glass or metal, was introduced recently by MRM, Inc., Brooklyn, N. Y. The new machine is equipped with a double strand stainless steel chain conveyor with adjustable side rails. Filling spouts are air operated and are designed to handle a variety of

liquids including detergents and waxes. Parts of the machine in contact with the material are of stainless steel but can be supplied in other metal or plastic if desired. Further information is available from the company, 191 Berry St., Brooklyn 11, N. Y.

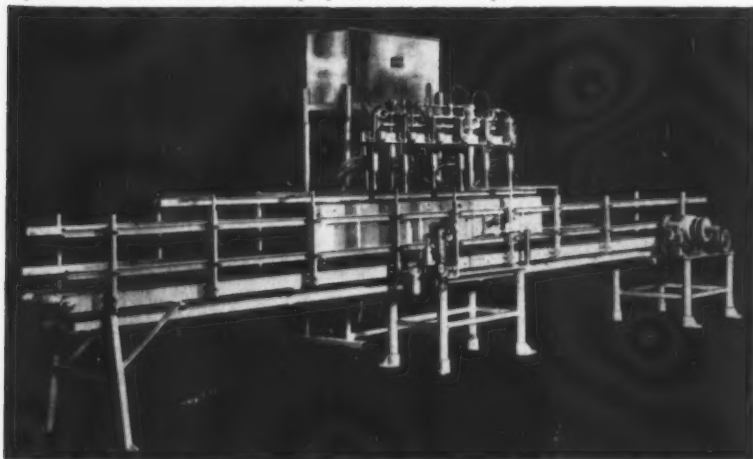
#### ★ **New Becco Bulletin**

Methods of preparation of epoxy fatty acid ester plasticizers are described in a new bulletin recently issued by the Becco Chemical Division of Food Machinery and Chemical Corp., Buffalo, N. Y. The booklet also lists physical and chemical properties and various applications of the product. Copies of the bulletin, #80, can be obtained on request to Becco Chemical Division, Food Machinery and Chemical Corp., Station B, Buffalo, N. Y.

#### ★ **New Mathieson Brochure**

Paper bag and container manufacturing operations are described in a new brochure, recently published by Forest Products Division of Olin Mathieson Chemical Corp., 460 Park Ave., New York 22. The 16-page booklet includes an explanation of how "Frostkraft" paper bags and corrugated containers are made at the division's West Monroe, La., plant, and outlines the diversification and principal products of Olin Mathieson and its subsidiaries. Copies of the brochure can be obtained on request.

New semi-automatic liquid filling machine designed for five gallon containers of either glass or metal, introduced recently by MRM, Inc., Brooklyn.



#### **New Anti-Static Agents**

Three new anti-static agents, for use on synthetic fibers, have been introduced by Sandoz Chemical Works, Inc., New York, it was announced recently. Trade named "Elosol SG, V and UW," the products are suited for application to fibers in loose, yarn and piece goods form. "Elosol SG and V" are neutral nonionics, while "Elosol UW" is cationic in character. Additional information, including properties and product applications, is provided in an eight-page brochure, recently issued by the company, 61-63 Van Dam St., New York 13. Literature is available on request.

#### ★ **New Terpene Oxides**

Two new terpene oxides, dipentene monoxide and alpha-pinene oxide are now available in experimental quantities from Becco Chemical Division of Food Machinery and Chemical Corp., Buffalo, N. Y., it was announced recently. Both compounds are designed for use as intermediates in the manufacture of pharmaceuticals, insecticides, and flotation agents and as reactants in organic synthesis, and as solvents.

Dipentene monoxide combines the reactivity of any epoxy group with that of an olefinic double bond in a cyclic terpene molecule. It is a water-insoluble, solvent-soluble liquid of characteristic odor and contains nine percent oxirane oxygen and has a purity of 85-88 percent.

Alpha-pinene oxide combines the reactivity of an epoxy group with that of the bicyclic system of alpha-pinene. It is a colorless liquid of camphor-like odor, insoluble in water and soluble in organic solvents. Alpha-pinene contains 9.4 percent oxirane oxygen and has a purity of 90 percent.

Further information on both products can be obtained from Dr. Paul H. Margulies, Becco Chemical Division, Food Machinery and Chemical Corporation, Station "B", Buffalo 7, N. Y.



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are made**

Constant supply is assured by five-plant production. The right quality is assured by a choice of 50% or 73% Liquid . . . 76% Solid, Flake, Granular, Ground or Powdered . . . plus special grades. And shipments by tanker, barges, drum lots and lined and insulated tank cars assure deliveries geared to your production schedules.

If caustic soda plays a part in your processes, contact your Olin Mathieson representative and find out how five plants from the Great Lakes to the Gulf—Niagara Falls, N. Y.; Saltville, Va.; Huntsville and McIntosh, Ala.; Lake Charles, La.—can help you buy to better advantage.

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# News...

**PEOPLE • PRODUCTS • PLANTS**

**Little Renamed C-P President**

• • •

**Floyd M. Barnes Dies at 79**

• • •

**Jack Mehr to Park & Tilford**

• • •

**Bush Hazardous Articles Act**

*Glenn Doerr, new president of Federal Varnish Division of Enterprise Paint Manufacturing Co., Chicago, has been with the floor finishes and seals firm since 1945. He was formerly vice-president of Federal.*



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*Produced at our Brooklyn Factory*

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## RESIN LIQUIDS

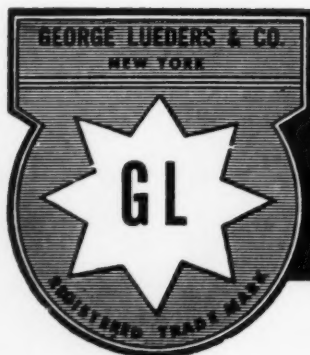
OLIBANUM	STYRAX
LABDANUM	BALSAM PERU
OPOPONAX	BALSAM TOLU
ORRIS	TONKA
BENZOIN	

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# News

## D-Y Appoints Shaw

Appointment of Paul H. Shaw as southern California district manager for the industrial soap and



Paul H. Shaw

wax division of Davies-Young Soap Co., Dayton, O., was announced recently by Howard Young, sales manager. In his new post, Mr. Shaw will aid sanitary supply jobbers in that area with the sales of Davies-Young products. Mr. Shaw formerly was territorial manager of Wilco Co., Los Angeles.

—★—

## Fed. Varnish Names Doerr

Glenn Doerr has been appointed president of the Federal Varnish Division of Enterprise Paint Manufacturing Co., Chicago, it was announced recently by A. R. Wolff, Enterprise president. Mr. Doerr, who joined Federal Varnish in 1945, formerly was vice-president. A large portion of his work in recent years has been devoted to research and development of synthetic resins for the varnish and paint industries.

—★—

## Stanley Earnings Lower

Sales and income of Stanley Home Products Co., Easthampton, Mass., showed a slight decrease in 1956, it was announced recently. Net sales fell to \$57,867,427 from \$58,470,157, in 1955. Net income in

1956 amounted to \$2,724,498, equal to \$4.36 per common share. This compared with a net income of \$3,058,948, equal to share earnings of \$4.88, in 1955.

—★—

## Babbitt Sales Increase

B. T. Babbitt, Inc., recently reported an increase in sales and a decline in income during 1956. Net sales for the year ended Dec. 31 totaled \$19,499,028, as compared with \$17,160,916 in 1955. A net loss of \$520,612 was reported for the year ending December 31, 1956. This compared with a net income of \$532,102, equal to earnings of 52 cents, in the previous year.

—★—

## Floyd M. Barnes Dies

Floyd Morgan Barnes, 79, retired vice-president and director of Procter & Gamble Co., Cincinnati, died Mar. 14 at his home in that city. Mr. Barnes joined P&G in 1899, became chief clerk in the traffic department in 1901, and was placed in charge of the firm's fats and oils purchases in 1917. In 1920 he became responsible for supervision of all P&G purchases and organized the general buying department in which all of the company's purchases are centralized. Elected vice-president in 1931, he was named a director three years later.

Floyd Morgan Barnes



## New Rohm & Haas Director

Donald F. Murphy has been elected to the board of directors of Rohm & Haas Co., Philadelphia,



Donald F. Murphy

it was announced recently. He replaces Stanton C. Kelton, who died last December.

Mr. Murphy joined Rohm & Haas in 1930 as an entomologist in the research laboratory. He later was made head of the company's research laboratory at Bristol, Pa. In June of 1943, he was appointed sales manager of the agricultural and sanitary chemicals department. He was named assistant secretary of Rohm & Haas in April, 1951 and 19 months later was elected a vice-president. Since that time, a major portion of his work has been devoted to management of the foreign operations division, which includes the export department and all foreign subsidiaries.

—★—

## Study American Soap Plant

A Japanese research group recently toured the manufacturing facilities of White King Soap Co., Los Angeles, as part of a six-week study of productivity of soaps, fats and glycerine in the United States. The Japanese contingent included prominent Tokyo businessmen representing management, engineering, research and labor unions.

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*Colgate-Palmolive*  
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For many years, Chemical-Specialty and Toilet-Goods Manufacturers have depended on Colgate-Palmolive for quality ingredients.

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## W. L. Sims Resigns as Colgate Head, E. H. Little Again Becomes President



Edward H. Little

**T**HE resignation of William Lee Sims II as president and a director of Colgate-Palmolive Co., New York, was announced late last month by the board of directors. He will be succeeded by Edward Herman Little, who was president from 1938 to 1953, when he was elected board chairman. Mr. Little, who is 75 years old, will continue as chairman.

In announcing his resignation, Mr. Sims stated that the necessity for devoting more time to personal affairs, including citrus groves in Florida, was a major factor in relinquishing the post he had held since July, 1955. Mr. Sims, who is 60 years old, joined the company as a salesman in 1924 and served as head of international operations and as executive vice-president before being elected president.

Mr. Little joined the Colgate organization in 1902 as a salesman in North and South Carolina. He became district manager of that territory in 1906. In 1914, he joined Palmolive Co. and served successively as district manager in Los Angeles, New York and Memphis, Tenn. He was forced to resign from the latter post because of ill health but rejoined the company after a lengthy recuperation period.

In 1928, at the time of the merger of the Colgate and Palm-



W. L. Sims, II

olive companies, he was general manager in charge of foreign operations of Palmolive. He continued in that position until his election in 1933 as vice-president of Colgate-Palmolive-Peet Co., in charge of sales and advertising.

The appointment of Mr. Little as president was the second top-level shift at Colgate-Palmolive in two years. Mr. Sims became president in July, 1955, replacing Joseph H. McConnell, who had succeeded Mr. Little in 1953.

### Charles F. Radley Retires

Charles F. Radley, one of the original directors of Oakite Products, Inc., New York, recently announced his retirement as director of publicity and as a member of

Charles F. Radley



the board. He will, however, continue with the company on a part time basis as a consultant on advertising, public relations and general management policy.

Mr. Radley, who has been with the organization for 40 years, was elected to the board of directors in 1926 when Oakite Products, Inc., was formed as a successor to the old Oakley Chemical Co. He was appointed director of publicity in 1927. For the past 30 years he has been responsible for the firm's entire industrial advertising program, including trade publications, exhibits, direct mail, literature and printing.

### Lever Appoints Saunders

Appointment of Katie Saunders as a brand publicity manager for Lever Brothers Co., New York, was announced late last month by J. E. Drew, public relations director. Miss Saunders formerly was a product publicist for the General Foods Corp., White Plains, N. Y. She previously had served with Foote, Cone and Belding.

### Sherrill in New Post

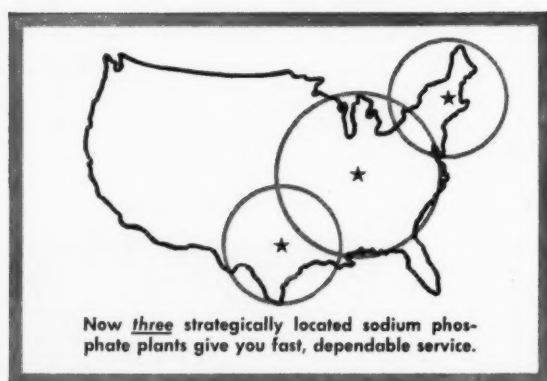
Joseph C. Sherrill has been named research supervisor of detergent evaluation and application in the soap division of Armour and Co., Chicago. It was announced recently. Mr. Sherrill formerly served as director of detergent research for the Linen Supply Association of America and the Diaper Service Institute of America.

Joseph C. Sherrill





**1,500,000,000 happier wash days  
... because of SHEA!**



Washes are brighter and cleaner today — thanks to modern laundry detergents. One of the principal ingredients of these wonder cleaners is sodium polyphosphate — in many cases, Shea sodium polyphosphate.

The demand for Shea sodium phosphates has grown so rapidly that in 1956 Shea built two new plants to meet the requirements of detergent producers. This year, Shea will ship them enough sodium polyphosphates to make over 15 lbs. of detergents for every family in America — enough for 1,500,000,000 family washes.

A basic chemical producer achieves a position like this only by supplying products of proven quality . . . and by giving outstanding service.

Do you use Shea sodium phosphates? If not, ask for samples.

Sodium Tripolyphosphate  
Tetrasodium Pyrophosphate  
Disodium Phosphate  
Trisodium Phosphate  
Sodium Hexametaphosphate  
Calcium Phosphate  
Phosphoric Acids, Food  
and N. F. Grades  
Phosphatic Feed Solutions  
Organo Phosphorus Compounds  
Elemental Phosphorus



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### New Kohnstamm President

Paul L. Kohnstamm has been elected president of H. Kohnstamm & Co., New York, it was announced



Paul L. Kohnstamm

recently. He succeeds Louis J. Woolf, who has been named chairman of the board. Mr. Kohnstamm formerly was secretary of the firm and a member of the board of directors. He is the son of Lothair S. Kohnstamm, a former president of the company. Kohnstamm & Co. manufactures soap, detergents and a wide variety of chemicals used in related fields.

Other appointments recently announced by the company include Robert H. Pulver, executive vice-president; Arthur D. Vogel, vice-president and member of the board; and Walter J. Kohnstamm, treasurer. Mr. Pulver formerly was sales manager of the firm's midwestern division in Chicago. He is also a board member. Mr. Vogel previously had served as eastern division sales manager, while Mr. Kohnstamm formerly held the post of assistant treasurer.

### Monsanto Names Kelley

Appointment of James J. Kelley as Columbus, O., district sales manager of the consumer products division of Monsanto Chemical Co., St. Louis, was announced recently. Mr. Kelley was formerly assistant sales manager of the division's New York district and prior to that had served as sales promotion manager of the

division. Mr. Kelley previously had been associated with Economics Laboratory, Inc., St. Paul, Minn., as southeastern regional sales manager, and with Detergents, Inc., Columbus, O., as sales representative in eastern Missouri and southern Illinois.

### New C-P Research Program

Colgate-Palmolive Co., New York, has established a new research laboratory at the University of Rome, devoted exclusively to the study of the relationship of chemical constitution to the properties of matter. The new laboratory is part of an international, cooperative scientific program, recently set up by Colgate to coordinate the interests of American industry in basic science with the aims of fundamental research in European universities.

The laboratory is directly supported by C-P's Italian subsidiary, Palmolive S.p.A., and will be under the direction of leading Italian university professors and scientists.

### ADM Names Yarham

Appointment of O. L. Yarham as technical sales representative in Chicago for the chemical products division of Archer-Daniels-Midland Co., Minneapolis, Minn., was announced recently by John D. Hetchler, division sales manager. Mr. Yarham formerly was associated with Cities Service Oil Co. and Battenfeld Grease and Oil Corp.

O. L. Yarham



### Classen Leaves U. S.

R. M. Classen, sales manager in Germany for L. Givaudan & Cie., S.A., Vernier-Geneva, Switzerland,



R. M. Classen

land, parent company of Givaudan-Delawanna, Inc., New York, left the United States on Mar. 2, after a two-month visit. During his stay here, Mr. Classen acquainted himself with Givaudan operations in this country and studied American market conditions. He also observed new trends in American perfumery as well as new aromatic chemical developments and their possible application to the European market.

### To Head D-Y Sales Group

Reg Gildner has been elected president of the newly-formed salesmen's club of Davies-Young Soap Co., Dayton, O., it was announced recently. Mr. Gildner is southern representative for the firm's industrial soap and wax division. According to the announcement, the club was formed to provide a channel for the exchange of ideas among Davies-Young salesmen.

### Jensen Aerogon Rep.

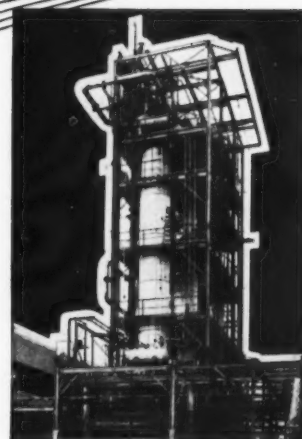
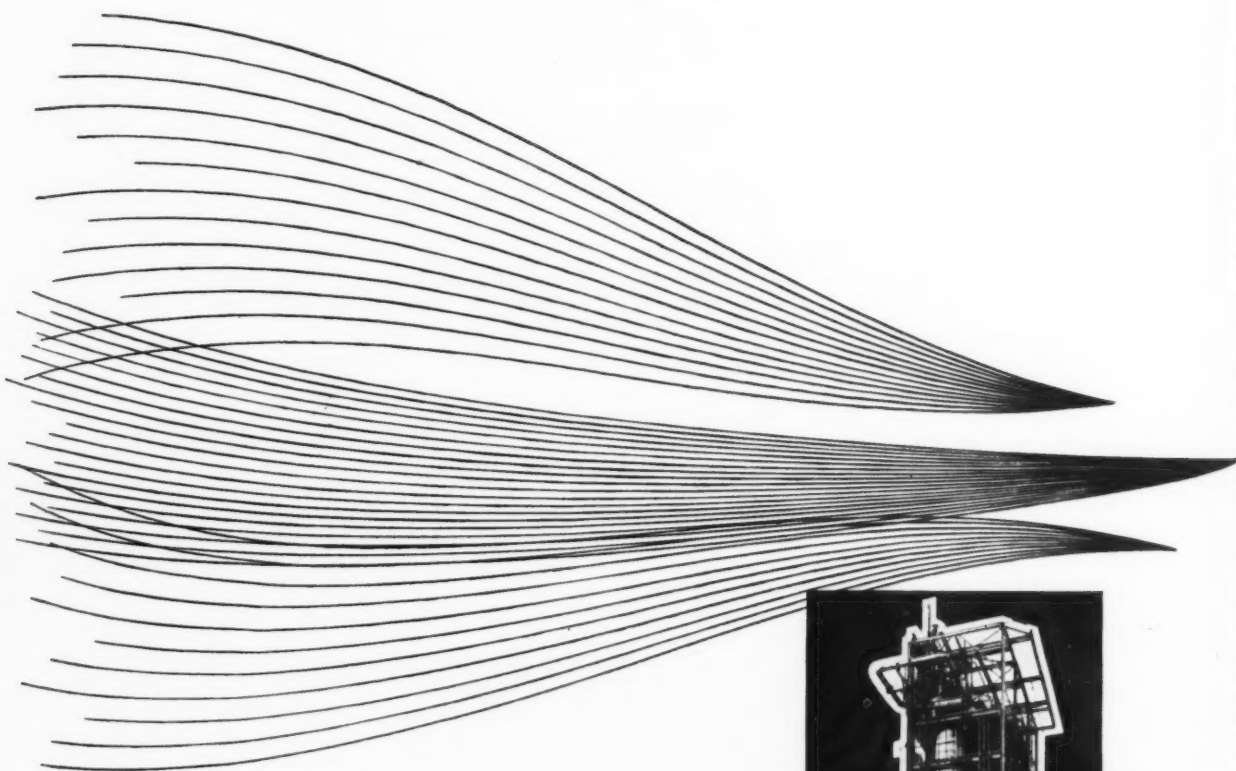
Aerogon Industries, Inc., New York, has appointed Fred A. Jensen & Associates, Chicago, as its exclusive sales representative in that city, it was announced recently by Kurt J. Wasserman, general manager of Aerogon. Jensen will handle Aerogon's complete line of waxes.

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*about some people who are—*

*or can be—important to you . . . AND WHAT THEY*

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### Bon Ami Sales Higher

Sales of Bon Ami Co., New York, almost doubled in 1956, according to the annual financial report recently issued by the company. Net sales totaled \$5,434,459 as compared with \$2,833,372 in 1955. Net income, however, fell to \$105,407, equal to share earnings of \$1.17, in 1956. This compared with a net income of \$134,597, equal to share earnings of \$1.50, in the preceding year.

—★—

### Avon Sales Record

Sales and earnings of Avon Products, Inc., New York, reached an all-time high during 1956, it was announced recently. Consolidated net sales amounted to \$86,826,432, a gain of 26 per cent over the volume of \$68,933,579 in 1955. Net income rose 30 per cent to \$8,127,271 in 1956 from \$6,250,614, a year earlier. Share earnings were equal to \$2.76 in 1956, as against \$2.11 in 1955.

—★—

### Chemway Earnings Higher

Chemway Corp., New Brunswick, N. J., recently reported an increase in income and earnings and a decline in sales for 1956. Net income for the year ended Dec. 31 amounted to \$313,353, equal to share earnings of 30 cents, compared with \$57,301 and five cents in 1955. Net sales in 1956 totaled \$7,351,204 as compared with \$7,836,933, in the preceding year. The company's report attributed improved earnings to more efficient operating policies.

—★—

### C-P Sales Record

Sales of Colgate-Palmolive Co., New York, passed the half-billion dollar mark last year for the first time in the company's history, it was announced recently by E. H. Little, chairman and president. Net income, however, was down almost \$3,500,000 from the 1955 level.

Net sales for 1956 totaled \$508,523,000, compared with \$468,578,000 in the previous year. Domestic sales rose \$5,391,000 to \$290,967,986 from \$285,576,671 in 1955. Foreign sales increased \$34,554,000

to \$217,555,000 from \$183,001,000 a year earlier.

Net income during 1956 amounted to \$10,517,848, equal to share earnings of \$4.05, compared with \$14,007,977 and \$5.50, in 1955. Net income from domestic operations fell to \$5,182,256 from \$9,260,003 but net income from foreign operations rose to \$5,335,592 from \$4,747,974.

—★—

### Shea Sales Increase

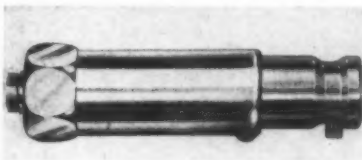
Sales and income of Shea Chemical Corp., Jeffersonville, Ind., showed a substantial increase in 1956, it was announced recently. Net sales for the year ended Dec. 31 totaled \$10,237,628, as compared with \$7,982,954 in 1955. Net income rose to \$747,828, equal to share earnings of 52 cents, from \$273,510 and 17 cents in the preceding year.

—★—

### New Bobrick Valve

Bobrick Dispensers, Inc., Los Angeles, recently announced a new stainless steel horizontal valve for dispensing liquid soap in lather form. The new valve features O-ring packings and a hex plug at the inlet, designed for easy servicing. It has a  $\frac{3}{8}$  inch i.p.s. female thread, is  $3\frac{1}{2}$  inches long and is constructed for pressures up to 100 pounds per square inch. Complete information on the valve, model 861W, may be obtained from the company, 1839 Blake Ave., Los Angeles.

At the same time, Bobrick announced the availability of an illustrated catalog sheet describing its two new liquid soap dispensers, "Bobrick 25" and "Bobrick 45." The two-color sheet, designed for insertion into a salesman's catalog, also provides complete information on applications, materials and principle of operation. Copies of the sheet may be obtained from the above address.



### Wyandotte Sales Record

Sales and earnings of Wyandotte Chemicals Corp., Wyandotte, Mich., reached an all-time high during 1956, it was announced recently by Robert B. Semple, president.

Net sales totaled \$79,627,750 for the 12 months ended with December, compared with \$63,058,975 in 1955, when operation was affected by an 82-day strike. Net income in 1956 amounted to \$4,435,738, equal to share earnings of \$3.13. This compared with \$990,140 and 72 cents in the previous year.

—★—

### Bruce Earnings Lower

Sales and earnings of E. L. Bruce Co., Memphis Tenn., decreased during the six month period ended Dec. 31, it was announced recently. Net sales for the last six months of 1956 totaled \$15,051,046, as compared with \$17,886,093, in the corresponding half of 1955. Net income for the six months ended with December fell to \$297,738, equal to share earnings of 93 cents, from \$823,478 and \$2.59 in the second half of 1955.

In the final quarter of 1956, Bruce reported total sales of \$7,211,612, as compared with \$8,685,508, in the fourth quarter of 1955. Net income decreased to \$76,999, equal to share earnings of 24 cents, from \$365,101 and \$1.15, for the similar three months a year earlier.

—★—

### FMC Earnings Record

Sales and earnings of Food Machinery and Chemical Corp., New York, last year exceeded all previous records, according to the annual financial report recently issued by the company. Net income amounted to \$15,875,486, equal to share earnings of \$4.72, an increase of seven per cent over the 1955 net income of \$14,881,575 or \$4.53 per common share. Net sales rose to \$302,156,416 from the \$264,619,766 volume the year before. These figures included sales of \$1,187,162 from the new subsidiary, Hudson-Sharp Machine Co., since last July 1.



Like a claw, Dow chelating agents firmly grasp and hold metal ions in solution, preventing them from undergoing the usual chemical reactions. But why so many Versene products? Are they effective on all metallic ions? We hope this continued discussion provides the answers, and further clarifies what chelates will do—and won't do.



# The Chemistry of Chelation: Part III

*Specific agents for specific conditions • Caustic solutions*

*Changing solutions • Industry responds*

In all, Dow offers 15 commercially available chelation products. These are grouped in the Versene®, Versenol®, and iron specialty (Versene Fe-3 Specific®, Versene T®, Versene S) series. The Versene and Versenol series were discussed in Part II of this advertisement. When used in solution, the Versene products inactivate practically any polyvalent metallic ion they contact. They accomplish this by actually forming a new compound in which the metal ion becomes a member of a stable inner ring structure in the molecule, so that no reversion or breakdown can occur. However, no one chelating agent can complex all metal ions under all conditions. One of the major considerations determining which chelating agent to use is pH. To illustrate, let's look at iron-containing systems, among the most troublesome for chemical processors.

## SPECIFIC AGENTS FOR SPECIFIC CONDITIONS

The first amino acid type chelate made commercially available was Versene, the tetrasodium salt of EDTA\*. It is the most versatile member of the series for it ties up most polyvalent metal ions throughout the pH range—with this notable exception: It is excellent for complexing iron in the acid range only. For economy above pH 7, we must look to a later development, Versene Fe-3 Specific.

The most effective and efficient agent known for complexing iron in the mildly alkaline pH range, Versene Fe-3 Specific also chelates copper, nickel, and cobalt—but has no effect on calcium, magnesium or other common non-transition metal ions. Where calcium and magnesium along with iron cause difficulty in alkaline solutions, a blend of Versene and Versene Fe-3 Specific is the answer. This mixture, called Versene Fe-3, complexes all of these troublesome ions. Its Versene Fe-3 Specific content is sufficient so as to automatically take care of the quantity of iron normally encountered in hard water.

Versene Fe-3 is also considered an important adjunct to the polymerization of synthetic rubber. It controls the concentration of the iron ions catalyzing the reaction, thus insuring a more-uniform, higher-quality end product.

## CAUSTIC SOLUTIONS

For chelating iron in caustic solution, another agent enters the picture—Versene T. This material ties up iron in a wide range

of caustic solution concentrations. It also complexes calcium, magnesium, nickel, cobalt, and other metal ions—throughout the normal pH range as well as in caustic solutions. In the presence of a suitable reducing agent, Versene T functions effectively as a rust remover—and without the drawbacks of acid cleaners. Versene T thus finds widespread use in boiler and heat exchanger cleaning, textile processing, etc.

Another effective chelating agent that is selective for iron in the free caustic pH range is Versene S. Since it will not chelate alkaline earth ions, Versene S is especially suitable for use in silicate-lined textile processing kiers.

## CHANGING SOLUTIONS

In special instances where a processing solution is strongly alkaline at first, then changes to neutral or to acidic, iron can be controlled with a mixture of Versene T and Versene Fe-3 Specific. In this combination, the Versene T component complexes the iron when the solution is caustic. As the pH drops, Versene Fe-3 Specific takes over.

## INDUSTRY RESPONDS

Every day, Dow chelates are finding new and expanding usage—in textile manufacturing and rubber processing, in soaps, synthetic detergents, cosmetics, and pharmaceuticals. Their ability to control ionic concentrations, to eliminate product breakdown, to smooth out production and save money, has brought enthusiastic response from industry. That they are solving a multitude of processing problems is true. But chelates are no cure-all. To uncover their profitable uses, we will help in any way we can. Write us on your company letterhead for application data and technical assistance. Technical Service and Development, Department SC 913H-3, THE DOW CHEMICAL COMPANY, Midland, Michigan.

\*Ethylenediaminetetraacetic acid

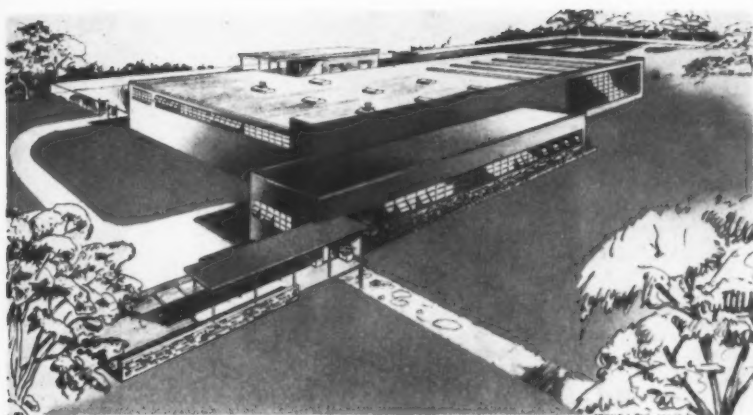
## THE NEXT TOPIC IN THIS SERIES

### PART IV

Applications in specific industries (formulation of alkaline cleansers—stabilization of hydrogen peroxide and kier boiling in textile processing—uniform control of trace metal catalysts in polymerization of synthetic rubber—other industrial applications).

YOU CAN DEPEND ON





New plant of American Cholesterol Products Inc., Edison, N. J.

### Amer. Cholesterol Expands

American Cholesterol Products, Inc., Milltown, N. J., manufacturers of sterol emulsifiers and acetylated lanolin derivatives, recently completed construction of its new plant and laboratory on a 20 acre site at Edison, N. J. The new building contains 35,000 square feet of floor space, including 5,000 square feet of laboratory and office section, which adjoins a 23 feet high, single-story manufacturing unit. An additional building in the rear of the site will be used for solvent storage.

The interior of the building is designed for functional efficiency and safety, and embodies the latest developments in laboratory and chemical plant construction. High and low pressure steam, ventilation, water, vacuum, cooling, electrical, and waste disposal systems have been incorporated in the building design. An artesian well, 525 feet deep, supplies 200 g.p.m. of cold water at 54 degrees fahrenheit. Two lagoons, each holding 250,000 gallons of water, working in conjunction with neutralizing tanks, comprise the industrial waste disposal system.

### CSMA Committee Manual

The Chemical Specialties Manufacturers Association, New York, recently announced publication of its 1957-1958 General Committee Manual. The new 12-page booklet, which is bound in a 9 x 11½-inch loose leaf folder, consists

of two sections. The first part provides information on organization of committees, scope of activities, meetings, minutes, special matters, reports and limitations. The second section lists all CSMA committees, including executive, coordinating, publicity and public relations, legislative, precautionary labeling, finance, toxicity, policy advisory, arrangements, program, entertainment and membership. The composition and function of these committees are also covered in this section. Further information may be obtained from the

CSMA, 50 East 41st St., New York 17.

### Wins Patent Dispute

The Patent Office Tribunal of Tokyo has ruled in favor of the Wisconsin Alumni Research Foundation, Madison, Wisc., in its patent infringement dispute with Toko Chemical Co., Tokyo. The Toko concern claimed that its method of making "Warfarin" rodenticide was different from that of the process contained in the Foundation's patent. The patent covers the synthesis of "Warfarin" by the condensation of four hydroxycoumarin with benzal acetone. The Japanese firm's process involved a reaction between anilino benzalacetone and four hydroxycoumarin.

### Florasynt Names Rubin

Florasynt Laboratories, Inc., New York, recently announced appointment of Henry M. Rubin Co., Philadelphia, as technical sales representatives. Rubin will handle Florasynt's line of masking agents in eastern Pennsylvania, southern New Jersey, Delaware and Maryland.

New officers and directors for 1957 of the Twin City Chemical and Allied Trades Association, Minneapolis and St. Paul, standing left to right: W. J. Fenelon, Hilex Co.; M. E. Lindemann, Lynde Co.; G. E. Carnahan, Shell Chemical Co.; E. J. Ringsrud, Great Stuff Products, Inc.; H. D. Hopp, Owens-Illinois Glass Co.; C. P. Barth, Merchants Chemical Co.; F. W. Traugott, E. I. du Pont de Nemours & Co. Seated, left to right, S. O. Lankester, Diamond Alkali Co.; J. A. Hess, Jr., Minnesota Mining & Manufacturing Co., secretary; N. P. Anderson, Hawkins Chemical Co., president; B. D. Heimark, Dow Chemical Co., vice-president; J. W. Douglas, Lithium Corp., treasurer. Not present when photograph was taken are I. T. Harvey, Lyons Chemical Co.; A. A. Hibbeler, Monsanto Chemical Co.; F. A. Lickteig, Manganese Chemical Co., and T. A. Wamstad, Mallinckrodt Chemical Co. Membership in the organization has now reached 100. Activities of the group include annual sponsorship of Chemical Progress Week, during which lectures and demonstrations before high school groups are featured to stimulate the interest of high school students in chemicals and chemical engineering.





### Miller Named Colgate V.P.

Election of William T. Miller as a vice-president of Colgate-Palmolive Co., New York, was an-



William T. Miller

nounced recently by E. H. Little, chairman and president. In his new post, Mr. Miller will be in charge of the new household products division, which includes soaps and detergents. He joined Colgate-Palmolive in 1931 and had been president and general manager of its Mexican subsidiary since January, 1956.

—★—

### Raymond Changes Name

Raymond Laboratories, Inc., St. Paul, a wholly-owned subsidiary of Rayette, Inc., has changed its name recently to Rayette, Inc., Chemical Division, it was announced by the board of directors. According to the announcement, the change in name was made to more fully associate Raymond chemicals with the trade mark of the parent company. Raymond was incorporated in August, 1951.

—★—

### SAACI Sees Series

A beefsteak dinner featuring motion picture highlights of the 1956 World Series was held by the Salesmen's Association of the American Chemical Industry (SAACI) at Toots Shor's Restaurant, New York, April 4. Lew Fonseca's "Official American and National Pictures of the 1956 World Series" was shown following the dinner.

M. Testa, Jr., Shell Chemi-

cal Corp., New York, was in charge of the meeting.

—★—

### Park & Tilford Names Mohr

Appointment of Jack H. Mohr as head of the toiletries and dyestuffs division of Park & Tilford Distillers Corp., New York, was announced recently. Mr. Mohr formerly was president and general manager of Lenthaler, Inc., West Caldwell, N. J., a wholly-owned subsidiary of Helene Curtis Industries, Inc., Chicago.

Mr. Mohr joined Lenthaler in 1952 as vice-president and director of advertising. At that time the firm was operated as a division of Olin Mathieson Chemical Corp., Baltimore. He became director of marketing in 1954 and was named general manager in June, 1955. Prior to joining Lenthaler, Mr. Mohr served as assistant to the president of Richard Hudnut, Inc.

Two additional appointments in its toiletries and dyestuffs division were also announced by Park & Tilford. Wiley F. Patton, formerly assistant marketing director of Lenthaler, has been named associate sales manager, while Fred Q. Swackhamer, for the past two years advertising director of Lenthaler, has been appointed advertising and promotion director. Before joining Lenthaler, Mr. Patton had been associated with Whitehall Pharmacal Co., New York, and Richard Hudnut, while Mr. Swackhamer had served as art director of Donahue & Coe, New York.

Jack H. Mohr



### Enterprise Names Hobbs

Appointment of Harley B. Hobbs as advertising director of Enterprise Paint Mfg. Co., Chicago,



Harley B. Hobbs

and its several divisions, was announced recently by Arnold R. Wolff, president. Mr. Hobbs formerly was vice-president of Russell M. Seeds Co., a Chicago advertising firm. One of Mr. Hobbs' main responsibilities in his new post will be the supervision of the advertising policies of the Federal Varnish Division of Enterprise.

—★—

### In Hollingshead Post

Appointment of Samuel Sanders as sales representative of the industrial division of R. M. Hollingshead Corp., Camden, N. J., was announced recently. In his new post, Mr. Sanders will handle the firm's line of sanitary maintenance chemicals in metropolitan New York and Long Island. Mr. Sanders formerly held a similar position with Auburn Chemical Co., Middletown, Conn.

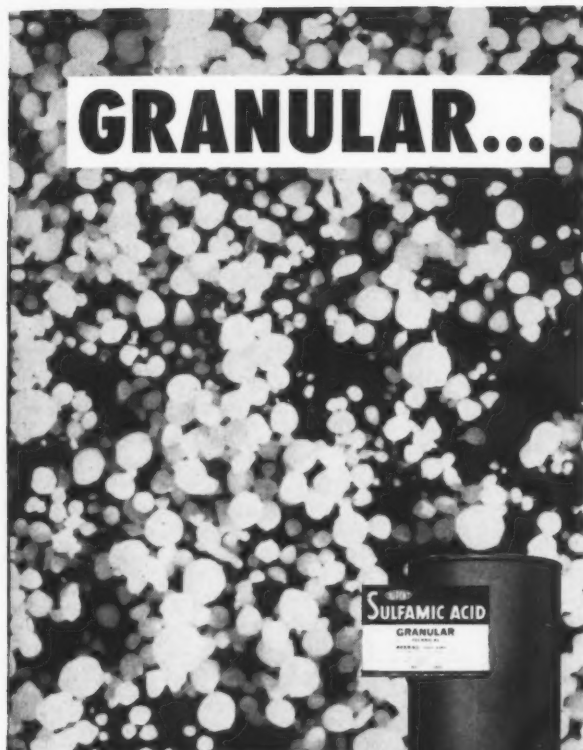
—★—

### Borax Department Relocates

The agricultural sales department of United States Borax & Chemical Corp., New York, on Apr. 1 moved its north central district office from Kansas City to 3456 Peterson Ave., Chicago 45. According to E. H. Schmierer, north central district manager, the transfer was made to consolidate the company's midwest activities in one location and to provide better facilities for its midwest customers.



# GRANULAR...

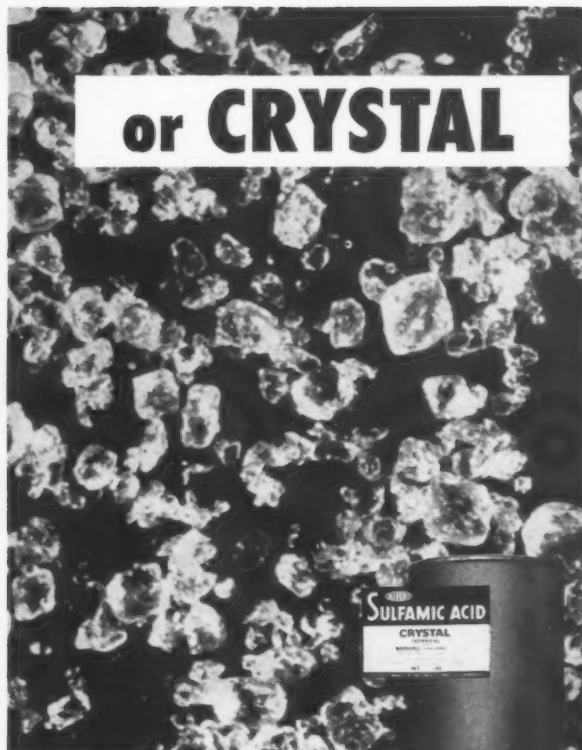


MAGNIFIED EIGHT TIMES

**GRANULAR GRADE.** A new, free-flowing, non-caking Sulfamic Acid best suited for use in cleaning compounds.

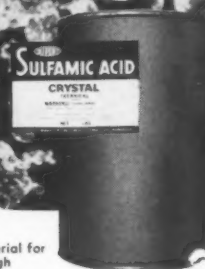


# or CRYSTAL



MAGNIFIED EIGHT TIMES

**CRYSTAL GRADE.** 99% active material for synthesis and chemical uses where high purity is required.



## DU PONT SULFAMIC ACID...the key to effective, easy-to-handle cleaning compounds and scale removers

Now you can produce acid cleaners that dissolve tough scale deposits quickly yet have low corrosive action—using granular or crystalline Sulfamic Acid. Cleaning compounds based on Sulfamic Acid handle a variety of difficult cleaning jobs—from copper kitchen pans to industrial vacuum pans. They do the job fast, safely, economically, and without fumes.

In addition, breakage and special-handling problems are eliminated because Sulfamic Acid is packed in lightweight, space-saving, disposable fiber drums.

**WRITE TODAY** for our new general information bulletin describing Sulfamic Acid and its applications in industrial cleaning... also our new brochures on Sulfamic-based cleaners for air conditioning equipment and Sulfamic Acid for scale removal in marine equipment.

### SULFAMIC-BASED FORMULATIONS ARE BEING USED TO CLEAN:

Automatic Dishwashing Machines	Copper-Bottom Pans
Sugar Evaporators	Industrial Boilers
Food-Processing Equipment	Heat Exchangers
Dairy Equipment	Ice-Making Machines
Brewery Equipment	Cooling-Tower Systems
Marine Evaporators	Evaporative Condensers
& Heat Exchangers	Engine Jackets
Paper-Mill Felts and Wires	Ion-Exchange Resins

**DU PONT**  
**SULFAMIC ACID**



Better Things for Better Living... through Chemistry

E. I. du Pont de Nemours & Co. (Inc.)  
Grasselli Chemicals Dept., Room N-2539  
Wilmington 98, Delaware

Please send me: ☐ Brochure on marine cleaning  
☐ Brochure on air conditioning equipment cleaning  
☐ Sulfamic Acid general information bulletin

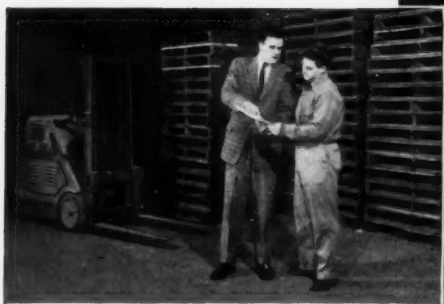
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Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_





**INVENTORY ERROR** threatens to halt production at the plant of a large manufacturer in Wisconsin. Unless supplies of two critically needed chemicals are delivered by early evening the second shift will have to be sent home. A long distance call is put through to Merchants' Milwaukee office.



**MERCHANTS' WAREHOUSE** has been closed for half an hour when the call comes in, but two of the Merchants sales staff volunteer to stay late to help meet the emergency. They load sixty bags and two drums of chemicals onto trucks and flats, ready for pick-up.



**AT 8:00 P.M. MANUFACTURER'S TRUCK ARRIVES**, is loaded quickly, takes off for a fast return trip. Dinner was late that night for the two Merchants men, but they had been able to help a customer out of a tight spot. That kind of customer service is a tradition at Merchants Chemical.

## THEY WERE READY TO SEND THE SECOND SHIFT HOME, UNTIL... Merchants' Service solved critical supply problem

A distributor, chemical or otherwise, sells service. At Merchants Chemical, service may take the form of emergency accommodation, as in the example cited above; or it may mean experienced technical advice, or special repackaging to help meet a particular production problem. Whatever your need, you'll find that

each Merchants office is ready to give **your** order the special attention it deserves. Merchants serves you from sales offices and stock points across the country. Products offered include acids, alkalis, fungicides, surfactants, chlorinated solvents, emulsifiers, laundry compounds, soaps, dry ice and chemical specialties.



**MERCHANTS CHEMICAL COMPANY, INC.**

60 East 42nd Street, New York 17, N. Y.

**SALES OFFICES AND WAREHOUSES:** Chicago • Cincinnati • Columbus • Denver • Louisville • Milwaukee • Minneapolis • New York • Omaha

**STOCK POINTS:** Albuquerque, N. M. • Erwin, Tenn. • S. Norwalk, Conn.

### Enters Aromatics Field

Hoffmann-La Roche, Inc., Nutley, N. J., manufacturers of pharmaceuticals, recently an-



Burton T. Bush, Jr.

nounced formation of an aromatics division. The new division will be under the direction of Philip C. Burnham, who has been named sales manager. For the past 12 years, Mr. Burnham had been associated with R. W. Greell & Co., New York.

It was also announced that Burton T. Bush, Jr., formerly special representative for aromatic chemicals and essential oils for S. B. Penick & Co., New York, has been appointed assistant sales manager. Prior to joining Penick, Mr. Bush was associated with the aromatics division of Dow Chemical Co., Midland, Mich. He previously had served for five years in a sales capacity with Bush Aromatics, Inc., New York. He is the son of B. T. Bush, now retired, and living in Florida and one of the pioneers in the establishment of the American aromatic chemical industry.

### Investigates Citrus Oils

Philip Berry, director of purchases for Ungerer & Co., New York, recently returned from an investigation of the citrus oil industry of Florida. He spent a month at Winterhaven and the surrounding areas and reports a steady increase in production of citrus oils, particularly as a result of newcomers to the field, which tends to

hold prices at levels lower than normal. There has been a steady improvement in quality of Florida oils, Mr. Berry noted.

### New S&E Soap Dispenser

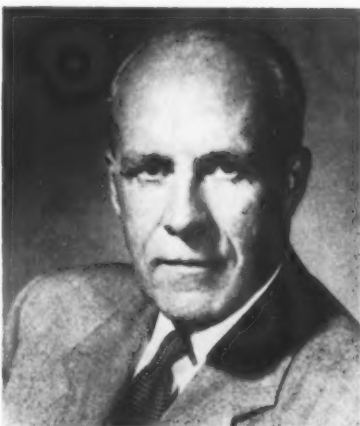
A newly-designed powdered soap dispenser was introduced recently by S&E Chemical Co., Chicago. Said to have a non-clog push-up type valve, it is constructed of heavy gauge brass and has a chrome finish. The dispenser also features a wide mouth top designed for easy filling and is available in three settings: #1, a close setting for dense and free flowing soaps; #2, a medium setting; and #3, a large setting for light and slow flowing soaps. Further information may be obtained from the company, 1751 North Harding Ave., Chicago 47.

### CSC Appoints O'Leary

Appointment of James V. O'Leary as general sales manager of Commercial Solvents Corp., New York, was announced recently by W. Ward Jackson, vice-president. In his new assignment, Mr. O'Leary will be responsible for sales of CSC's anti-freeze, automotive chemicals and related industrial chemicals.

Mr. O'Leary formerly was sales manager of the firm's biochemicals division. He joined CSC in 1927 and also has served as midwest regional sales manager with headquarters in Chicago and as district manager of the company's Detroit branch office.

James V. O'Leary



### deMeurisse to Gen. Mills

Alfred G. deMeurisse has been named New York district sales manager of the chemical division



Alfred G. deMeurisse

of General Mills, Inc., Kankakee, Ill., it was announced recently. In his new post, Mr. deMeurisse will supervise sales of the company's "Versamid" polyamide resins, fatty nitrogen compounds, fatty acids, fatty menthyl esters and sterols. He formerly served with the Barrett Division of Allied Chemical & Dye Corp., New York as manager of the chemical sales department. Previously he was special sales representative for Barrett in Buffalo, N. Y. and Newark, N. J.

### Panogen Buys Larvacide

Acquisition of Larvacide Products, Inc., New York, by Panogen, Inc., Lake Geneva, Wis., was announced recently by Petrus Hellman and Conrad C. Johnson, respective presidents of Panogen and Larvacide. The purchase was consummated through the sale of Larvacide stock to Panogen.

Larvacide will continue to operate under its own name and under the management of Mr. Johnson. However, its main office will be shifted from New York to Ringwood, Ill. Richard P. Porter also will continue as vice-president in charge of sales.

Both companies manufacture a complete line of pesticides. In addition, Larvacide makes numerous industrial fumigants, including "Aerosol Larvacide."



**TOMORROW'S PRODUCTS TODAY... THROUGH ENJAY PETROCHEMICALS**

## **Basic raw materials for DETERGENTS that leave every glass with a "Crystal Sparkle"**

There is solid sales-appeal in a detergent for home or restaurant use that leaves every glass with a "Crystal Sparkle." Marketing one of these new detergents will put new sparkle in your sales chart, too!

Every manufacturer of detergents should investigate Enjay Tridecyl alcohol, Tripropylene and Tetrapropylene—high-quality petrochemicals that can play key roles in the manufacturing process. These, and other Enjay petrochemicals, are making significant contributions in the manufacture of many products characteristic of the modern American standard of living.

The modern, well-equipped Enjay Laboratories have recently been expanded and are at your service in the application of any Enjay petrochemical. Call or write for further information.

Enjay offers a widely diversified line of petrochemicals for industry:

**ALCOHOLS & SOLVENTS:** Lower Alcohols, Oxo Alcohols, Ketones and Solvents; **OIL & FUEL IMPROVERS:** Detergent Inhibitors, V-I Improvers, Oxidation Inhibitors; **CHEMICAL RAW MATERIALS:** Olefins, Diolefins, Aromatics; **ENJAY BUTYL RUBBER & VISTANEX.**

**ENJAY COMPANY, INC., 15 W. 51st STREET, NEW YORK 19, N. Y.** Akron, Boston, Chicago, Los Angeles, New Orleans, Tulsa



*Pioneer in  
Petrochemicals*



### Wyandotte Appoints Two

Michigan Alkali Division of Wyandotte Chemicals Corp., Wyandotte, Mich., recently an-



Roger Moister

nounced appointment of Roger Moister and Scott Starkey as managers of the firm's newly-established sales offices in the South. Mr. Moister will head the new southeastern district office located at 46 Fifth St., N.E. Atlanta 5, Ga., while Mr. Starkey will be in charge of the

southwestern district branch at 304 National Bank Building, Baton Rouge, La. Both men had previously served Wyandotte in the ter-



Scott Starkey

ritories covered by the new districts.

The southeastern district includes Alabama, Georgia, Florida, North and South Carolina and eastern Tennessee. The southwestern district will serve western Tennessee, Mississippi, Arkansas, Louisiana, Texas and New Mexico.

### Armour Appoints Ferrick

F. G. Ferrick has been appointed assistant product manager of the chemical division of Armour and Co., Chicago, it was announced recently by E. A. Coons, division general manager. In his new assignment, Mr. Ferrick will supervise sales of unsaturated fatty acids. Mr. Ferrick, who joined Armour in 1950, formerly was chemical sales representative in New York and

F. G. Ferrick



New Jersey. He is succeeded in that post by D. W. Malec. Mr. Malec will headquarter in Syracuse, N. Y.

### New Sulfamic Plant

E. I. du Pont de Nemours & Co., Wilmington, Del., recently began construction of a new plant for manufacture of sulfamic acid at the site of its present plant at East Chicago, Ind. Completion of the structure is scheduled for late '57.

D. W. Malec



### Canadian Soap Output Rises

The value of the Canadian soap and detergent industry's annual production has increased from \$37,000,000 to more than \$100,000,000 in the past ten years, it was reported recently. Subsidiaries wholly owned by the three largest soap and detergent manufacturers in the United States account for 80 per cent of the present output.

★

### Hazardous Articles Act

An act to regulate the interstate distribution and sale of hazardous articles in packages suitable for or intended for household use is being considered for introduction in the present session of Congress. Senator Prescott Bush, United States Senator from Connecticut, is sponsoring the bill, called Federal Hazardous Articles Act.

The draft of the proposed law has been submitted to the Department of Health, Education and Welfare which suggested a number of amendments widening the scope of the proposed law. For instance, the amended definition of the term "hazardous article" covers 'any article which is toxic, corrosive, an irritant, flammable, radioactive, or which generates pressure through decomposition, heat or other means, and which may result in personal injury or illness when used for its intended purpose or during any customary or reasonably anticipated handling and use, including accidental misuse, such as misuse by young children, which may reasonably be anticipated from the nature of the article and its intended customary uses.'

A full copy of the proposed act and the suggested amendments has been sent by the Chemical Specialties Manufacturers Association to its members. CSMA suggests that all member companies have their legal counsel examine the bill at once, and that comments be sent to the association office. CSMA has proposed to Senator Bush that a general meeting be called prior to the bill's introduction.

**PQ SILICATES**  
**Modern Builders**  
**FOR SYNTHETIC**  
**DETERGENTS**



PHOTOGRAPHS COURTESY OF HASPEL SELFCAIRE® SUITS & L'AIGLON APPAREL, INC.

Today, silicates of soda are the choice builders for the synthetics. Look into these special advantages; whiter, brighter, cleaner washables because soluble silica in PQ silicates excels as a deflocculant and then serves to prevent the re-deposition of removed soil. Other plus values from the use of PQ silicates as builders are (1) the control of corrosiveness of most synthetic detergent mixtures and (2) a lower cost.

Yes, PQ silicates have proved themselves as effective materials for improving the modern detergents, from deflocculating power to free rinsing properties. There is a PQ soluble silicate to fit all detergents—liquid, paste or dry. Let us discuss how PQ silicates can help you.



**SILICATE OF SODA**

**METSO DETERGENTS**

**PHILADELPHIA QUARTZ COMPANY**

1152 Public Ledger Building, Philadelphia 6, Pa.

Associates: Philadelphia Quartz Co. of Calif. Berkeley & Los Angeles, Calif., Tacoma, Wash.; National Silicates Limited, Toronto, Canada  
Distributors in over 65 cities

TRADEMARKS REG. U.S. PAT. OFF.

PQ WORKS: ANDERSON, IND., BALTIMORE, MD., BUFFALO, N. Y. CHESTER, PA., JEFFERSONVILLE, IND., KANSAS CITY, KANS., RAHWAY, N. J., ST. LOUIS, MO., UTICA, ILL.

### Fries Appoints Zimmer

Benedict F. Zimmer, Jr., has been named technical advisor of Fries and Fries, Inc., Cincinnati,



Benedict F. Zimmer, Jr.

it was announced recently by Robert G. Fries, president. In his new post, Mr. Zimmer will headquarter at the firm's New York branch at 418 East 91st St. Mr. Zimmer formerly was associated with Albert Verley and Co., Linden, N. J., as chief chemist. Prior to that he served for 16 years as chief chemist in charge of production and control for Fritzsche Brothers, Inc., New York.

### New Detergent Firm

Formation of Surfact-Co., Inc., Blue Island, Ill., a new producer of detergents and chemical specialties, was announced late last month. The firm's facilities include a complete laboratory, raw materials bulk storage in excess of 100,000 gallons, plant capable of processing yearly in excess of 20,000 barrels of alkanolamide condensates, and 40,000,000 pounds of formulated liquid detergents and concentrates. The firm's staff will provide technical service for customers.

Surfact-Co., Inc., is currently offering two formulated compounds: "Scrubanol," a synthetic floor cleaning concentrate, merely requires the addition of water and of dye and perfume, as desired, to yield a hard surface and floor cleaner. "Surco 40" is a formulated liquid hand dishwashing compound, said

to have good foaming power and stability under heavy soil load conditions.

A modified 96-98 per cent active coconut alkanolamide condensate is being offered for the formulation of general purpose cleaners, high alkali type and mild cleaners, and for wax strippers. "Surfact-Co. MA" can in many instances be formulated without need of an additional coupling agent, serves as basic ingredient for products with a pH ranging from 8.7 to 12.7.

"Surfact-Co. 60" is an aqueous solution of alkanolamine neutralized alkyl aryl sulfonate. A coconut alkanolamide condensate is built into this product for high foam stability under heavy soil loads. Car shampoos and liquid dishwashing compounds are suggested applications for "Surfact-Co. 60."

A four-page bulletin is available from Surfact-Co., Inc., Box 114, Blue Island, Ill., supplying specifications of the above items and a number of suggested formulations.

### P&G Named Best Managed

Procter & Gamble Co., Cincinnati, has been named as the best managed company in the United States, according to a special management audit, recently published by the American Institute of Management, New York. The Cincinnati concern has appeared on the AIM's annual list of the ten best managed companies since the institution began issuing comparative ratings seven years ago. This is the first year that the top ranking firm has been revealed.

In winning the citation, P&G was awarded 9,530 points out of a possible 10,000. The institution bases its managerial examination of a firm on 10 categories of activity; economic function; corporate structure; health of earnings; service to stockholders; research and development; directorate analysis; fiscal policies; production efficiency; sales vigor; and executive evaluation.

### New Standard Oil Line

A new line of floor finishes has been introduced by Standard Oil Company of California, San



New Standard Oil Floor Hardener.

Francisco, it was announced recently. The products include a floor hardener, a self-polishing type wax, and a wax floor spray. They replace the lines of paste and liquid solvent-type waxes formerly manufactured by the company.

The floor hardener is said to seal pores and provide a protective coating for cement, wooden, linoleum, unglazed tile, magnesite and composition flooring. Coverage is claimed to be up to 600 square feet per gallon. The water emulsion wax is especially designed for rubber and tile floors, while the wax floor spray is suitable for use as a dressing for wooden, linoleum, tile and composition flooring, plus all floors previously treated with the hardener. Further information can be obtained from the company, 130 Sutter St., San Francisco.

### Tesco Appoints Katz

Avery K. Katz has been appointed to the newly-created position of assistant sales manager of Tesco Chemicals, Inc., Atlanta, Ga., it was announced recently by John W. Girvan, vice-president in charge of sales. Mr. Katz formerly was Tesco's territory supervisor for North and South Carolina and Virginia. Tesco manufactures industrial chemicals and institutional and household products under the brand name "Tes-Ted."

### ISMA New York Chapter

Organization of a metropolitan New York Chapter of the Industrial Sanitation Management Association was to be discussed at a meeting held at the Terrace Room of the Hotel New Yorker, New York, April 16, it was announced recently by Albert J. Burner, organizing chairman. Mr. Burner is supervisor of cleaning standards, operations services department, central maintenance division, Port of New York Authority. The meet-

ing was addressed by J. Lloyd Barron, manager of the sanitation department, National Biscuit Co., New York, and other national officers and board members of the organization. Further information may be obtained from Mr. Burner, ISMA, 855 Avenue of the Americas, New York 1, N. Y.

### ADM Elects Andrews

Election of Walter G. Andrews as a vice-president of Archer-Daniels-Midland Co., Minneapolis.



Walter G. Andrews

Minn., was announced recently by Thomas L. Daniels, president. Mr. Andrews formerly was head of the resin and plastics division. Mr. Andrews joined ADM in 1941 as a control chemist, became a research chemist in 1942 and was a member of the firm's technical sales service staff from 1944 to 1948. In 1948 he was appointed director of specialty oil sales and was elected assistant vice-president in 1950. He was assistant general sales manager of ADM for a year prior to his appointment as head of resins and plastics last fall.

### CSC Advances Two

Commercial Solvents Corp., New York, recently announced the election of J. Fred Dudley and Graham W. McMillan as vice-presidents. Mr. Dudley will head the company's production and engineering activities. He formerly was chief engineer. Mr. McMillan will be responsible for research and development and the operation of the central research laboratories at Terre Haute, Ind. He formerly was manager of development.

J. F. Dudley



G. W. McMillan



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Steffen Arctander

### Arctander to Colgate

Steffen Arctander, formerly chief chemist of Co-Ro Manufacturing Co., Copenhagen, has joined the perfumery and essential oils division of Colgate-Palmolive Co., New York, it was announced recently. Prior to joining Co-Ro, Mr. Arctander was associated with Medicinalco, Ltd., also of Copenhagen.

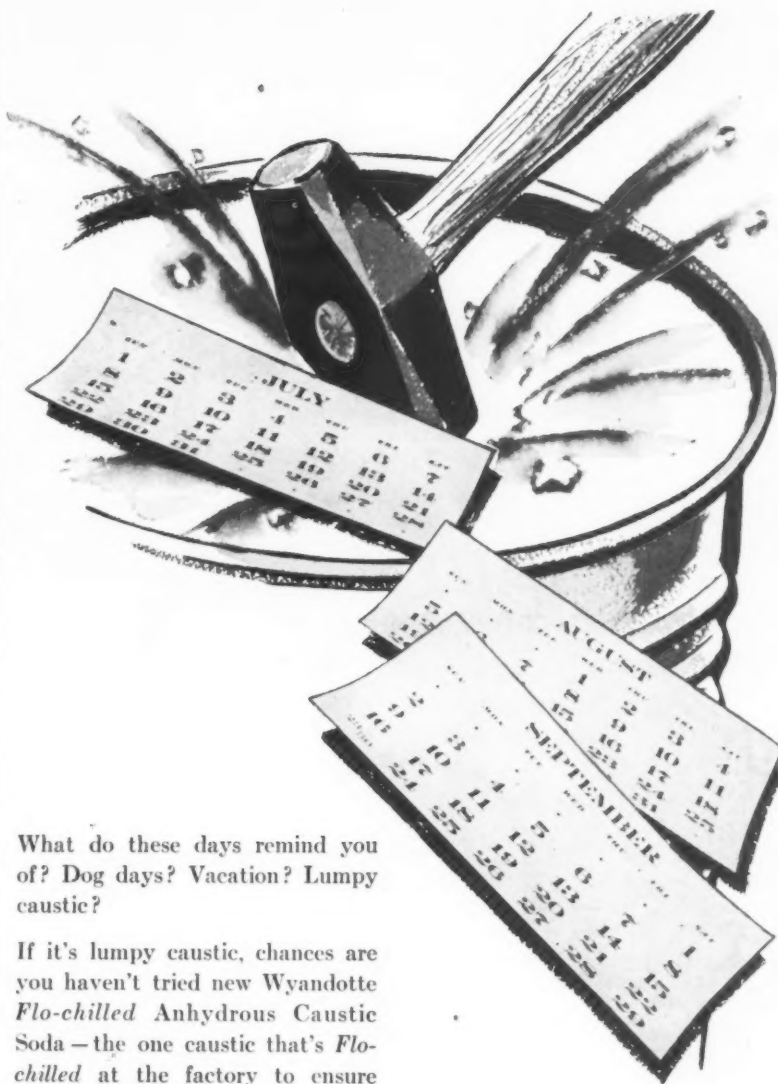
A graduate of the University of Copenhagen, Mr. Arctander is author of numerous scientific articles on his botanical explorations into Africa. During the course of six trips to that continent he has collected specimens of essential oils and flower fragrances, many of which are presently on display at the School of Pharmaceutical Chemistry at the University of Copenhagen.

—★—

### Cowles Chemical Expands

Cowles Chemical Co., Cleveland, recently announced purchase of 20 acres of land in Monroe, Mich., from River Basin Paper Co. of that city. According to R. F. Huntley, Cowles' president, the land will be used to expand the company's production and distribution facilities in the midwest. The new site is served by a major railroad and is adjacent to the Detroit Freeway. Mr. Huntley added that an announcement as to construction of a new plant may be made sometime later this year. Cowles also recently acquired 82 acres of land at Skaneateles Falls, N. Y.

APRIL, 1957



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### Kelite Sales Meeting

Sales management skills and technological training were the theme of the Spring sales manage-



J. O'Brien



A. Sakavich

ment conference of Kelite Corp., Berkeley Heights, N. J., held recently at Phoenix, Ariz. All Kelite sales management representatives in the United States, Canada and Hawaii attended the two-day meeting. William Sorensen, executive vice-president and director of marketing, presided. Other conference highlights were reports on product emphasis, product performance and sales plans for 1957.

At the same time, Kelite announced two appointments in its sales division. John E. O'Brien has been named district sales manager in Philadelphia, while A. E. Sakavich has been named in charge of the firm's sales development service. In his new post, Mr. O'Brien will be responsible for Kelite sales in Pennsylvania, Maryland, Delaware, Virginia, West Virginia and southern New Jersey. He formerly was associated with Pennsylvania Salt Manufacturing Co., Philadelphia.

Edward A. Bush, extreme left, sales manager of Dragoco, Inc., New York, recently visited company's parent plant in Holzminden, Germany. During visit Mr. Bush familiarized himself with operations of Dragoco, discussed selling techniques and was briefed on new products. One of firm's chemists and Dragoco's export manager appear in photo with Mr. Bush.



### Southwell Van Dyk Rep.

E. H. Southwell Co., Los Angeles, has been named sales representative in the western United States for Van Dyk & Co., Belleville, N. J., manufacturers of cosmetic and aromatic raw materials, it was announced recently. Southwell's sales division will be headed by Benjamin Karp, who has been selling to the perfume and cosmetic trade on the West Coast for the past 25 years.

### Woodbury Buys Brancucci

Woodbury Chemical Co., St. Joseph, Mo., has purchased Brancucci Chemical Co., Denver, Colo., it was announced recently. The Brancucci plant will be operated under the direction of Leonard Everett, who formerly was located at Woodbury's main plant in St. Joseph. Woodbury manufactures pesticides and insecticides and recently entered the industrial chemicals field.

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#### **Diamond Appoints Polite**

Appointment of L. J. Polite, Jr., as product sales manager of the chlorinated products division of Diamond Alkali Co., Cleveland, was announced recently by Loren P. Scoville, division general manager. In his new assignment, Mr. Polite will supervise sales of the company's complete line of chlorinated products. Mr. Polite formerly was sales manager of organic chemicals. He joined Diamond as a sales representative in 1952. He

was named assistant sales manager of agricultural chemicals in 1952 and two years later was advanced to agricultural chemicals sales manager. He was appointed sales manager of organic chemicals in February, 1956.

#### **Standard Appoints Cooper**

Franklin H. Cooper has been appointed technical service director of Standard Aromatics, Inc., New York, it was announced recently. In his new post, Mr. Cooper

will supervise aerosol and cosmetic research. He previously had been associated with Connecticut Chemical Research Corp., Bridgeport, Conn.

#### **Montrose Makes DET**

Montrose Chemical Co., Newark, N. J., recently announced commercial production of diethyl toluamide, a new insect repellent base, which was developed by the U.S. Department of Agriculture. The USDA described diethyl toluamide (DET) as "the best all-purpose insect repellent so far developed." Pilot-plant quantities of material supplied by Montrose were used in evaluating the various isomers of DET in government testing programs.

The product can be applied directly to the skin or clothing and protects the user against mosquitoes, ticks, chiggers, fleas and biting flies. The USDA reports that it is more effective against mosquitoes in general than any other chemical or combination of chemicals. Further information may be obtained from Montrose's New York sales agent, R. W. Greeff & Co., 10 Rockefeller Plaza, New York.

#### **Warner-Lambert Elects Two**

Stanley S. Lasdon has been elected a director and vice-president of Warner-Lambert Pharmaceutical Co., Morris Plains, N. J., it was announced recently. Milton S. Lasdon has been elected a vice-president of the company and president of its Nepera Chemical Division, Harriman, N. Y. Both men are former officers of Nepera which was recently acquired by Warner-Lambert.

#### **Cos. Chems. Ladies' Night**

"Ladies Night" of the Chicago Chapter of the Society of Cosmetic Chemists was held on Apr. 9th at Henrici's Restaurant, Chicago. Featured speaker of the program was Miss Ann Lee of the Patricia Stevens Finishing School. Miss Lee's topic was "Charm in a Capsule."

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### Purex Soap Contest

A soap sales promotion campaign and contest was announced recently by Purex Corp., South Gate, Calif., on behalf of its "Sweetheart" soap. The contest, which will run on a nationwide basis for eight weeks, began Mar. 5. Grand prize is a \$37,150, custom built house, complete with paid insurance, utilities, appliances, furniture and station wagon. Second prize is a paid up mortgage on the present home of the winner, up to \$10,000. These and 190 other prizes will be awarded to winners who best express in 25 words or less, the reasons for wanting to win the home. The contest will be backed up by newspaper and magazine advertising and by point of sales displays in retail stores.

—★—

### Bare to Atlas

Atlas Powder Co., Wilmington, Del., recently announced the appointment of Bruce M. Bare as marketing manager of its chemicals division. Mr. Bare formerly was marketing manager of the organic chemicals division of Dewey and Almy Chemical Co., Cambridge, Mass. Previously he had served as Chicago regional sales manager for Sharples Chemicals, Inc., Philadelphia.

—★—

### CSMA Anti-Freeze Guide

A compilation of state laws and regulations affecting quality and sale of antifreeze solutions, was published recently by the Chemical Specialties Manufacturers Association, New York. The new 8½ x 11-inch loose-leaf manual also contains a 36-page compilation of brake fluid laws, which was published by the CSMA last year.

The section on antifreezes consists of 60 pages and covers legislation already in effect in 15 states. Also included in the volume are reference charts as to registration requirements, filing dates, and fees. Cost of the manual is \$6.00 per copy. Further information may be obtained from the CSMA, 50 East 41st St., New York 17.



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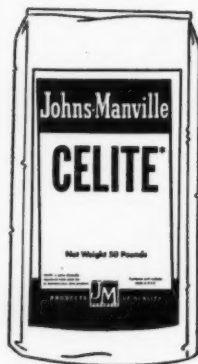
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**Johns-Manville CELITE**  
INDUSTRY'S MOST VERSATILE MINERAL FILLER

### New Patents (From Page 149)

from the group consisting of oxygen and sulphur; x is a number of at least 1 and no greater than 5, and M is an alkali metal.

—★—

### Clorox Sales Higher

Sales and earnings of Clorox Chemical Co., Oakland, Calif., increased in the six-month period ended Dec. 31, it was announced recently. Net sales for the second half of 1956 totaled \$20,128,861, as compared with \$18,660,319, in the corresponding period of 1955. Net income amounted to \$1,389,253, equal to share earnings of \$1.92, as against \$1,240,448 and \$1.71, in the similar period a year earlier.

—★—

### Lehn & Fink Sales Up

Sales and earnings of Lehn & Fink Products Corp., New York, increased in the six month period ended Dec. 31, it was announced recently. Net sales for the latter six months of 1956 totaled \$13,680,255, as compared with \$13,128,714, in the corresponding period of 1955. Net income for the six months ended with December increased to \$567,286, equal to share earnings of \$1.45, from \$199,408 and 51 cents, in a similar period a year ago.

—★—

### Shell Names Lowrey

Appointment of W. C. Lowrey as assistant market development manager of Shell Chemical Co., New York, was announced last month by L. V. Steck, vice-president of marketing. Mr. Lowrey formerly was manager of the firm's Newark, N. J., chemical sales district. Mr. Lowrey joined Shell in 1948 as a technical salesman in Cleveland. In 1950 he moved to New York as a technologist and two years later was named manager of the eastern division solvents department. In 1953 he was appointed manager of the St. Louis district and in 1955 was transferred to Newark in a similar capacity.

### New Hooker Appointments

Earl L. Whitford has been elected vice-president and director of Hooker Electrochemical Co., Niagara Falls, N. Y., it was announced last month by Bjarne Klaussen, president. Dr. Whitford was president of Oldbury Electrochemical Co., Niagara Falls, prior to its recent merger with Hooker. In his new post, Dr. Whitford will coordinate Hooker research programs at Niagara Falls, including the new Oldbury Division, and at

the Durez Plastics Division at North Tonawanda, N. Y.

Other new appointments in the Oldbury Division include:

James H. Brown, director of research and development; Marion B. Geiger, general manager; Clarence A. Stiegman, technical director; Maynard L. Parker, production manager; John C. Pernert, chief research chemist; Harold L. Townsend, chief engineer; William H. Streichler, plant engineer; Floyd E. MacDonald, personnel director; Harold N. Fyffe, general sales manager; Robert B. Boyd, sales manager; Fred H. Berggren, assistant sales manager; and Harry R. Oswald as works manager of the Division's Columbus, Mass., plant.



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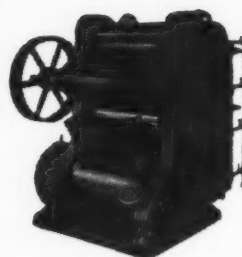


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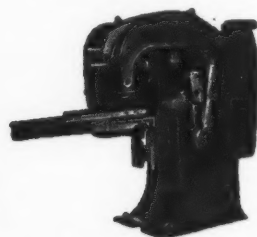


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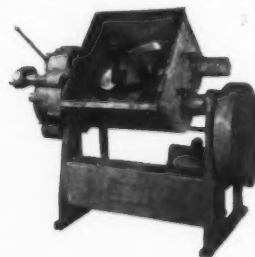
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(Continued on Page 195)

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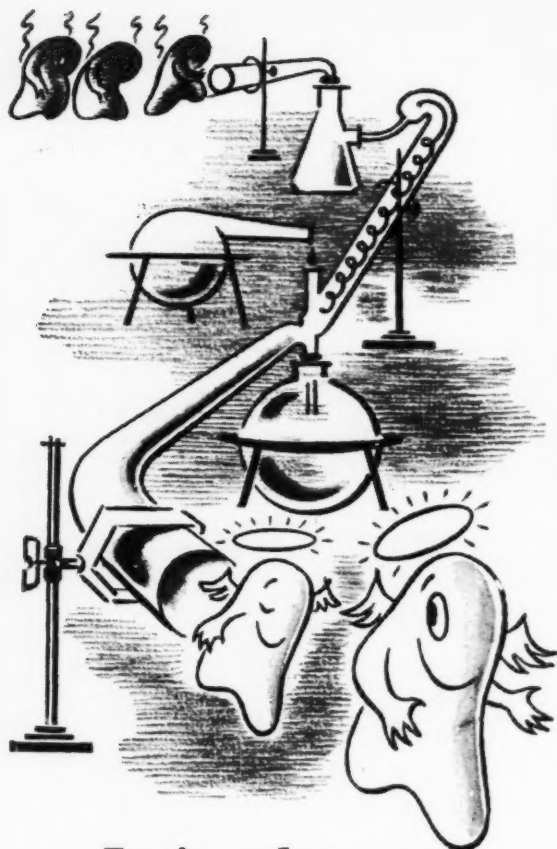
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**Available:** 64 page listing of "Synthetic Detergents Up-to-Date", (1955). Write John W. McCutcheon, 475 Fifth Ave., New York 17, N. Y.

(Reference Books see page 200)

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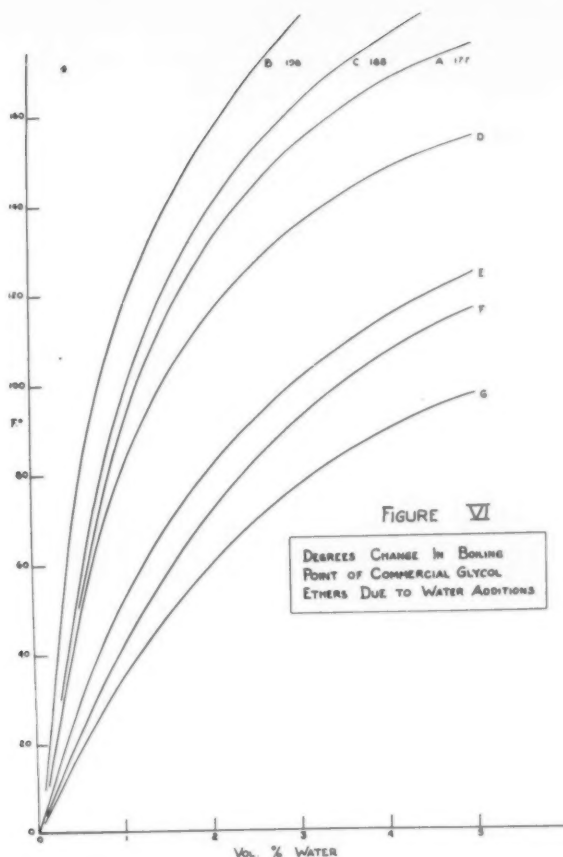
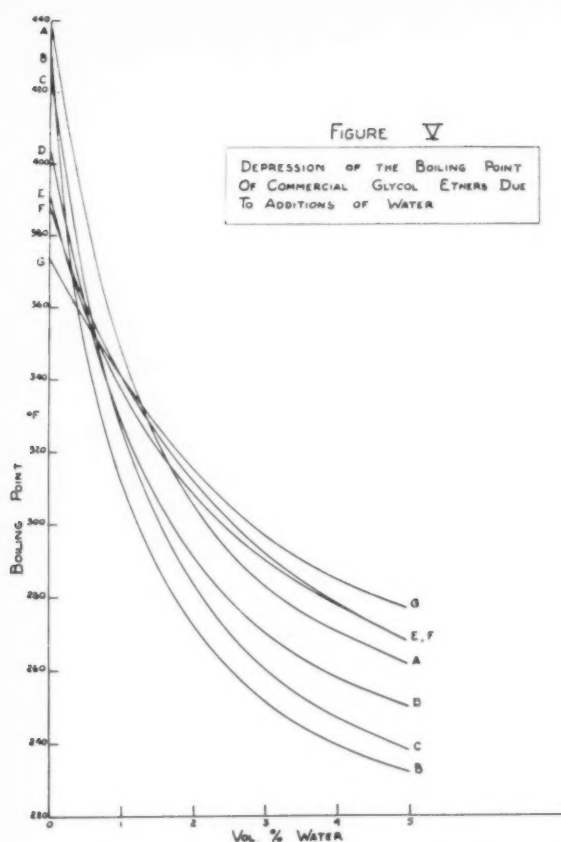
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### Brake Fluids

(From Page 87)

wide variations between the degrees change in boiling points of glycols on Table III due to additions of water.

Table IV shows the reflux boiling points with respect to water additions of some commercial glycol ethers. Water has a greater effect on this class of compounds

than the glycols just mentioned. Figure V is a plot of the data from Table IV which shows the boiling points of glycol ethers with added water. These curves are all similar and do not show such wide variations as do the data for glycols. Figure VI is a plot of the degrees change in boiling points of glycol ethers due to water additions. Here all the curves have a similar shape and again do not show wide variations like the glycols.

### Conclusions

**B**ASED on limited test data, the chief brake fluid property affected by water contamination of 1.75 per cent by volume was boiling point. Other properties affected were low temperature viscosity and corrosion of metals, although they remained within the specification limits.

Measuring boiling points of seven different heavy duty brake fluids containing more than two

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per cent by volume of water, it was found all fluids tested failed to meet a minimum 300°F. boiling point. One fluid initially boiling at 345°F. was equivalent, at two per cent water contamination, to the three fluids with initial reflux boiling points of 380°-390°F. All four were just above 300°F. boiling point. As the percentage of water contamination was increased, the 345°F. initial boiling point fluid's boiling point fell less rapidly than the three high boilers, in effect making it a superior fluid at these severe levels of water contamination. It can, therefore, be concluded the present initial reflux boiling point is not an accurate measure of the overall performance of brake fluids when a significant amount of moisture is present.

A cursory review covering the products of three brake fluid manufacturing companies indicated the cost of raw materials for brake fluids in the 380-390°F. boiling point range was from 20 to 30 per

cent greater than for brake fluids in the 320-340°F. boiling point range. This would appear to be a significant premium to pay for the small amount of added boiling point range actually achieved in the "critical range" of one to two per cent water contamination.

Two groups of chemicals used in brake fluids, glycols and glycol ethers, are both affected by water contamination. However, individual products within these groups are affected to varying degrees. The glycol ethers appear to be affected more than glycols. Likewise, the higher the initial reflux boiling point, the greater the boiling point depression by water contamination.

#### Recommendations

FROM this study the authors wish to recommend the following: 1. In seeking ways to upgrade heavy duty brake fluids, consideration should be given to specifying a reflux boiling point at some per

cent water contamination. The per cent water contamination selected should conform closely to conditions found in the field.

2. Further research is called for to develop superior brake fluids having boiling points higher than those now available and less affected by water contamination.

3. Continued attention should be paid to the mechanical design of the brake system with emphasis on heat dissipation.

—★—

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## Coming Meetings

American Oil Chemists Society, fall meeting, Cincinnati, Sept. 30, Oct. 1 and 2. 48th annual meeting, Roosevelt Hotel, New Orleans, April 29-May 1.

Association of American Soap & Glycerine Producers, 31st annual convention, Waldorf-Astoria Hotel, New York, Jan. 22-24, 1958.

Chemical Market Research Association, Lake Placid, N. Y., Sept. 16-17.

Chemical Specialties Manufacturers Association, 43rd mid-year meeting, Drake Hotel, Chicago, May 20-22; 44th annual meeting, Hollywood Beach Hotel, Hollywood, Fla., Dec. 9-12.

CIBS monthly luncheon meeting, Toots Shor's Restaurant, New York, June 13.

Drug, Chemical and Allied Trades Section, New York Board of Trade, 67th annual meeting, Galen Hall, Wernersville, Pa., Sept. 19-21, 1957.

Grocery Manufacturers of America, 49th annual meeting, Waldorf Astoria Hotel, New York, Nov. 11-13, 1957.

International Sanitation Maintenance Show & Conference, 2nd annual exposition, Navy Pier, Chicago, Oct. 14-16.

National Association of Retail Grocers, Los Angeles, June 10-14, 1957.

National Pest Control Association 24th annual convention, Louisville, Ky., Oct. 21-24.

National Restaurant Convention and Exposition, 38th annual meeting, Navy Pier, Chicago, May 6-10.

National Sanitary Supply Association, 35th annual convention and trade show, Coliseum, New York, Feb. 22-24, 1958.

National Supermarket Non-Food Exhibit, Shrine Exposition Hall, Los Angeles, August 25-28.

Packaging Machinery & Materials Exposition, Convention Hall, Atlantic City, N. J., March 25-28, 1958.

Society of Cosmetic Chemists, Spring meeting, Commodore Hotel, New York, May 10.

Synthetic Organic Chemical Manufacturers Association, monthly luncheon meetings, Roosevelt Hotel, New York, April 10; June 11; annual outing, Skytop, Pa., May 26-28.

Toilet Goods Association, 22nd annual convention, Waldorf-Astoria Hotel, New York, May 7-9, 1957.

Western Plant Maintenance and Engineering Show and Conference, Civic Auditorium, San Francisco, June 11-13.

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## Tale Ends

From Vienna comes word that a new type of floating soap has been invented there, one in which a core of wood or other material with a specific gravity lighter than water is included. New idea? We remember that over 20 years ago the late Dr. Jones, then prez of R. A. Jones & Co., Covington, Ky. of soap press fame, developed several hollow shells for toilet soap particularly so that the small hotel size could be made two or three times larger with the same amount of soap and also to float. Guess he never bothered much with his idea.

Grandma's old-fashioned home-made soap! This time, it's in the form of a poem on "How Grandma Made Soap" by Ottis Shirk which appeared recently in "Ideals," a book of verse published in Milwaukee. And it ends up by stating "... of the best cleaning agency—dirt could not cope ... with grandma's old-fashioned home-made soap." But the poet failed to mention that the finished product was also a gooey mess which would turn the stomach of a brass monkey and which normally contained a large excess of rancid fat.

According to the American Home Laundry Manufacturers Assn., California is the cleanest state in the nation. For the second year in a row, more home washing machines were sold in California in 1956 than in any other state. Actually, last year, 410,114 washing machines were bought by residents of the Golden State. That's a lot of machines. Non-sudsing detergent manufacturers please take notice.

A couple of interesting facts were brought out in a recent article on the soap industry which appeared in "Barron's" for March 18. Since 1879, P & G has turned out some 15 billion cakes of Ivory Soap. Only seven of these are known to have sunk. How they know, we don't know. Also, says Dana L. Thomas, the author, if the use of cans for liquid detergents continues to increase at the present rate, by 1960 more cans will be used for detergents than for beer.

That Neil McElroy, prez of P & G, will take over Wilson's job as Secretary of Defense in the not too distant future, is a rumor that has been flying thick and fast around the soap industry. As one of the star players on the P & G team, maybe some of their competitors might be glad to see him move out of the soap business—for the time being at least. Soap industry competition may be rugged, but they tell us that these Washington top jobs are far worse, doubled in spades!

Jay C. Harris, head of Monsanto detergent research laboratories at Dayton, Ohio, and a widely known character in the soap and detergent field, was the subject of a recent feature article in the St. Louis Post-Dispatch, "All about soap from the expert's view." It tells how Jay

has studied detergents since 1931, how he washes 30,000 lbs. of really dirty clothes a year in testing detergents and how he once washed the Washington Monument. It failed to mention that he won the CSMA Achievement Award in 1956. An excellent interview article by a P-D staff writer named Dickson Terry with a man who really knows his stuff.

Not long ago, a lady on the West Coast who runs a home economics column in one of the newspapers, described in detail how to wash a cat. Now, we've discovered a better and simpler way to do this ticklish job. At Mardela, Maryland, a housewife did the family wash in her automatic washer. Meanwhile, she searched for the missing family cat. Upon unloading the washer, she discovered said cat, soaking wet, undamaged and thoroughly cleaned.

All the time, we're running across new and tricky non-detergent uses for soap. The latest comes from Tampa, Florida, and it's about an airplane that was stuck in the air for two hours with a damaged nose wheel. The Tampa airport people phoned

near-by MacDill Air Force Base and they rushed a shipment of soap to the Tampa field. It was spread on the runway and hosed down, forming a mat of concentrated suds. The airplane skidded in on the slippery runway and all was well. No damage. Nobody hurt.

Those swans which inhabit the Thames near London have had oil trouble again. As usual, a sinking oil barge discharged a large quantity of fuel oil into the river. The birds became doused with oil and some of them died. So this time, they flew in a zoologist from Germany, Dr. Max-Heinz Sy, who promptly treated all the birds they could catch with a detergent solution. As we remember it, this is the very same treatment used by an English zoologist a couple of years ago. Maybe Dr. Sy brought his own detergent with him.

The Denver post office recently was just about snowed under by a sampling job for a well-known cleanser. The manufacturer shipped in 153,000 cans of the stuff, according to The Denver Post, each weighing five ounces. For a day or so, it knocked mail deliveries for a loop while mail carriers muttered in their beards because they were overloaded. The postmaster laughed it off,—he didn't have to make the deliveries,—and said such mailings were "more or less normal."

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